PROPOSED DEVELOPMENT OF ESKOM NTSHONA 132kV SUBSTATION AND TWO OVERHEAD 132kV POWERLINES WITHIN MOGALE CITY LOCAL MUNICIPALITY, KRUGERSDORP, GAUTENG PROVINCE.

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FINAL BASIC ASSESSMENT REPORT

FEBRUARY 2016

DEA REFERENCE:

14/12/16/3/3/1/1503

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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 should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

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

PROJECT DETAILS

Title	:	Environmental Impact Assessment Process Proposed construction of new Ntshona 132 kV substation two 132kv Overhead Powerlines within the West Rand District Municipality, Krugersdorp, Gauteng Province. .
Report compiled by	:	Company Name: Envirolution Consulting Contact person: Mr Thabang Sekele Postal Address: P.O.Box 1898, Sunninghill, 2157 Telephone Number: 0861 44 44 99 Fax Number: 0861 62 62 22 Email: thabang@envirolution.co.za
Client	:	Eskom Holdings SOC Ltd
Report Status	:	Final Basic Assessment Report for Competent Authority decision

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Environmental Assessment Practitioner (EAP):	Envirolution Consulting (Pty) Ltd		
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EAP Qualifications	BSc (Hons)		
EAP Registrations/ Associations	Registered with the South African Council for Natural Scientific Professions (No: 400049/12)		

Details of the EAP's expertise to carry out Basic Assessment procedures

Envirolution Consulting Pty Ltd was contracted Eskom as the independent environmental consultant to undertake the Environmental Basic Assessment process for the proposed project. Envirolution Consulting Pty Ltd is not a subsidiary of or affiliated to Eskom. Furthermore, Envirolution Consulting does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

The EAPs from Envirolution Consulting who are responsible for this project are (refer to **Appendix H** for CVs):

- Gesan Govender – The principle environmental assessment practitioner (EAP) for this project is a registered Professional Natural Scientist and holds an Honours Degree in Botany. He has over 15 years of experience within the field of environmental management. His key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. He is currently responsible for the project management of EIAs for several diverse projects across the country.

- Mr. Thabang Sekele forms part of the project team and acts as the Project Co-ordinator for all phases of the project. Thabang holds a BA (Environmental Management) in which he majored in Geography of which he plans on enrolling in a Postgraduate (Honours) programme in 2016. He is an Environmental Professional with good exposure to the Environmental Management field. Thabang's key focus is on strategic environmental assessment and advice; management

and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; environmental auditing and compliance reporting; the identification of environmental management solution and mitigation/risk minimising measures; environmental auditing, monitoring and reporting compliance. Thabang has been an Environmental Control Officer for various projects entailing Environmental Authorisations in Gauteng, Mpumalanga and Free State provinces of South Africa. Thabang is currently a Project Co-ordinator and Environmental Professional at Envirolution Consulting (Pty) Ltd.

IMPORTANT NOTE:

Please note that this Final Basic Assessment Report did not receive comments on the Draft Basic Assessment Report from the national competent authority (Department of Environmental Affairs) and the provincial authority (Gauteng Province Department of Agriculture and Rural Development) within the stipulated 30 day review period. Proof of reminder to submit comments is attached as Appendix E9. This Basic Assessment would like to bring attention to the Environmental Impact Regulations 2014, Regulation 4 which states "When a State department is requested to comment in terms of these Regulations, such State department must submit its comments in writing within 30 days from the date on which it was requested to submit comments and if such State department fails to submit comments within such 30 days, it will be regarded that such State department has no comments". However, this Basic Assessment has received comments on the DBAR from the Mogale City Local Municipality and are attached as Appendix E8 and also stipulated in the Comments and Response report in Appendix E3.

With the aim of honouring stipulated timeframes, this Final Basic Assessment Report was submitted to DEA without their comments on the DBAR and without comments from GDARD.

TABLE OF CONTENTS

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

1.1 Background Information

Eskom SOC Holdings Ltd is submitting an application to the Department of Environmental Affairs (DEA) for the proposed development of a new 132 kV Ntshona substation with a footprint of 1.5 hectares in addition to the construction of two 132 kV overhead power lines extending from the proposed substation to the Westgate MTS substation in Krugersdorp, Gauteng Province. The first powerline is the Westgate-Ntshona line that will be approximately 2.2 km of which Eskom already has a Service Right Permit of which Eskom wishes to convert to servitude and the second line is the Westgate Rand Centre line that is approximately 5.3 km in length. It must be noted that the Westgate Rand Centre is a rebuild of the existing 88 kV power lines which will be stepped up from 88kV to 132 kV capacity. This Westgate Rand Centre line occupies two separate corridors at the section between where the line surrounds the slimes dam south of the proposed Ntshona substation up until they join the Westgate MTS. The new substation location and overhead power line routes are situated on a mining industrial area on **Portion 136 of the farm Luipaardsvlei 246 IQ** and **portion 52 on farm Rietvalei 241IQ,** Gauteng Province. The project site falls within the jurisdiction of the West Rand District Municipality in close proximity to the Mogale City Local Municipality, Gauteng Province.
Two technical alternatives exists for the proposed two power lines:

- Alternative 1: entails the construction of the overhead power lines supported by on either concrete monopoles or self supporting lattice towers depending on the founding conditions (overhead option): and:
- Alternative 2: entails laying the electrical cables beneath ground (underground option).

Two feasible alternative sites have been considered for the location of the substation. Please refer to **Figure 1** for details.

This Basic Assessment Report (BAR) covers the findings of the site assessment and impacts identified in the powerline route corridors and the associated Alternative sites for the proposed construction of the substation.

The objective of this proposed development is to accommodate future and planned residential and Mine dump operation demands within the area and improve the reliability and quality of electricity supply in the area. The existing Rand Centre is old and the risk of failure is high and is in urgent need of refurbishment. This old substation can also pose a major safety risk to external contractors and even Eskom employees. Thus the Eskom Technical Evaluation Forum (TEF) has concluded to rebuild another substation in another location in the form of Westgate Ntshona substation. Furthermore, the Rand Centre substation can't cater for new load within the supply area as the 44kV/22kV transformer at Rand Centre is operating below capacity (overloaded) and network performance in the area is affected as a result of this.

1.2 Project Description and Routes and Substation Description

The proposed development for which application is being made therefore entails the following:

- The construction of a new 132 kV substation with a footprint of 1.5 hectares.
- The construction of a 132 kV overhead power line of approximately 2.2 km in length (Westgate-Ntshona).
- The rebuild of the existing Westgate-Rand Centre power line which will loop into the proposed Ntshona substation (Westgate Rand Centre)

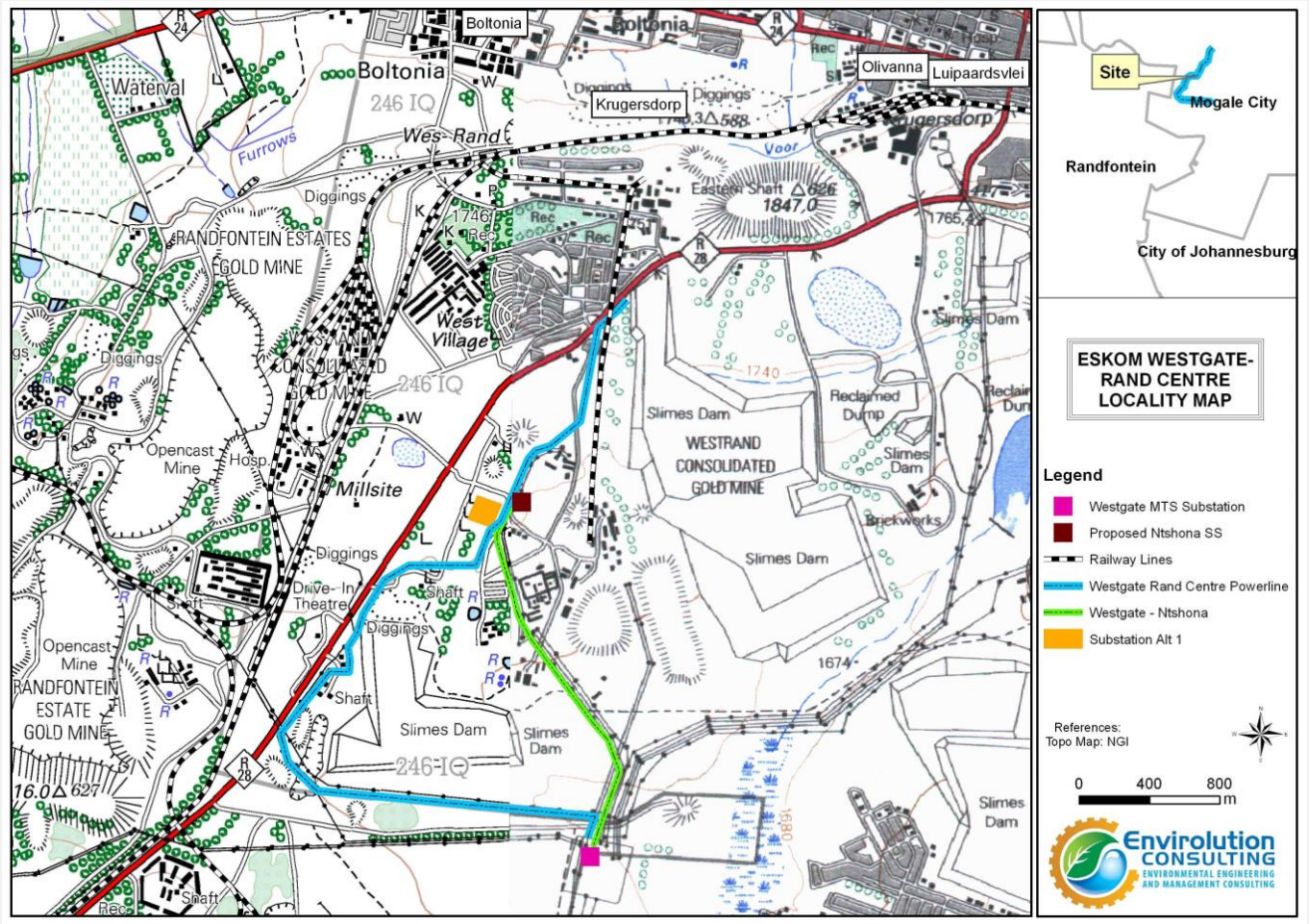

Figure 1: Locality of the Ntshona substation and overhead power lines.

1.2.1 Power line routes Description

The two proposed route corridors for the construction of the overhead lines 132kV proposed line are as follows.

Westgate-Ntshona Line (Green route): This overhead line will branch out from the proposed Ntshona substation in a south westerly direction before turning to extend approximately 1.5 km in a south easterly direction, then to finally turn southwards into the existing Westgate MTS substation. This route transverses the mine property and flanks the active mine to its west while crossing a mine dirt/access road before joining the existing power lines coming from Westgate MTS substation. It must noted that this power line is approximately 2.2 km in length (Please refer to **Figure 2** for route plan of Westgate-Ntshona line). The land use along the route

comprises of vacant land and mining activities (Mogale Alloys smelter) and disturbed grasslands. Eskom has as part of this route secured only about 200 m servitude and will need to acquire a further 600 m servitude in order to use this route. This powerline will transverse over both **portion 136 of the farm Luipaardsvlei 246 IQ** and **portion 52 on farm Rietvalei 241IQ.**

Figure 2: Route plan of the Westgate-Ntshona overhead power line with estimated elevations (annoted in yellow).

Westgate Rand Centre Line (blue in colour): This line will loop out from the proposed Ntshona substation in a southern direction to extend westwards and then south westwards around the slimes dam where it splits into two parallel corridors where Eskom proposes to build a double-circuit line using monopoles and single Bear conductor per circuit from the Ntshona substation to eventually turn eastwards approximately 1.5 km into the existing Westgate MTS substation. It must be noted that this Westgate-Rand Centre line is existing and is proposed to be rebuilt to loop into the proposed Ntshona substation. This power line is approximately 5.3 km in length (Please refer to **Figure 3** for route plan of Westgate Rand Centre line). Similar to the Westgate Ntshona line, the land use along the route comprise of vacant land and mining activities (Mogale Alloys smelter) and disturbed grasslands. (The blue line extending northwards from the proposed Ntshona substation towards the R28 in **Figure 1** is a representation of the existing Rand Centre power line and this section of the line is not part of the rebuild of the Westgate-Rand Centre line that is being proposed and therefore was not assessed).

Figure 3: Route plan of the Westgate-Rand Centre overhead power line with estimated elevations (annoted in yellow).

1.2.2 Substation Description

Proposed Ntshona Substation: The site is approximately 1.5 ha and is situated in a mining industrial area. The site is an open vacant land within disturbed grasslands predominantly transformed by decades of mining with large slimes dams, surface disturbances and alien plants emphasising the degraded mining character. Eskom has deliberately targeted a bigger land area, in order to accommodate the existing lines to provide space for towers and turning lines into the substation.

Substation Alternative 1: The alternative also 1.5 ha is to be located approximately 100 m to the south west of the proposed Ntshona substation in an area where open cast mining is currently taking place. It must be noted that an environmental authorisation was previously granted for a previous Ntshona substation application on 27 June 2013 (DEA Reference: 14/12/16/3/3/1/727). The reason that construction cannot take place is that open cast mining operations have since commenced and are currently ongoing on the authorised site area.

Please refer to **Figure 1, Figure 2, Figure 3** and **Appendix A** for project location, **Appendix B** for the site photographs showing an overall view of the site, and **Appendix C** for the Infrastructural layout plans.

Following feasibility studies, two overhead routes, two underground routes (of which follow the alignment of the overhead lines) and two substation alternative sites were provided for further assessment in this Basic Assessment process (refer to Figure 1 and also locality map enclosed within **Appendix A).**

1.3 Environmental Setting

The project area is situated within the Soweto Highveld Grassland vegetation unit. The existing landscape character of the study area can be described as highly degraded with very little or no natural undisturbed landscape that remains. The location of the substation lies at the co-ordinates of 26° 07' 46.10" S and 27° 45' 01.10" E. The R28 arterial road lies on the western side of the study area. The project is located in an area that is predominantly transformed by decades of mining with large slimes dams, surface disturbances and alien plants emphasising the degraded, mining character. This biome is dominated by grasslands wherein high summer rainfall, combined with dry winters, night frost and marked diurnal temperature variations are unfavourable to tree growth. The study area is situated in a summer rainfall region with a mean average rainfall of 662mm per annum (Mucina & Rutherford, 2006). Winters are cold with frost, while summer temperatures can be as high as 30°C.

1.4. Specialist studies

Several specialist studies have been undertaken to provide more detailed information on the environment aspects that may be affected by the proposed project. Specialist Ecological (Flora and Fauna), Wetland, Visual, Heritage and Geotechnical Assessments were undertaken during the Basic Assessment and their reports are attached as Appendices to this BAR.

1.4 Construction of the powerline and substation

1.4.1 Access Routes

One major transport route, the R28 arterial between Krugersdorp and Randfontein, passes within 500 m of the proposed substation site. The R28 carries high capacity of traffic at reasonable high speed. The closest residential development is approximately 1.2 km south west of the substation site, next to the R28.

For construction purposes, the proposed sites can be reached via the existing access roads. Existing small gravel roads (that may be upgraded as part of this development) provides access to the site. The use of roads on private property will be subject to the Environmental Management Programme (EMPr) and will be determined based on discussions with landowners should it be necessary.

Stormwater will be managed according to the Eskom Guidelines for Erosion Control and Vegetation Management as well as the Environmental Management Programme (EMPr) that has been compiled for the construction and operational phase.

1.4.2 Construction Site Camps

Normally the powerline contractor would set up at least one site camp but this does not necessarily need to be near the substation site. The contractor may however prefer to use a fully serviced site in another location. The

exact location of the construction camps and material stockyards are yet to be determined.

1.4.3 Sewage

A negligible sewage flow is anticipated for the duration of the construction period. Onsite treatment will be undertaken through the use of chemical toilets. The toilets will be serviced periodically by the supplier and effluent will be collected for disposal into the registered Waste Water Treatment Works by the appointed service provider.

1.4.4 Solid Waste Disposal

All solid waste will be collected at a central location at each construction site and will be stored temporarily until removal to a registered permitted landfill site.

1.4.5 Electricity

Diesel generators will be utilised for the provision of electricity where electricity connection is not readily available.

1.4.5 Construction Process

Generally, the construction of the powerline is expected to consist of the following sequential phases:

Step 1: Feasibility and identification of line alternatives.
Step 2: Basic Assessment input and environmental permitting.
Step 3: Negotiation of final route with affected landowners.
Step 4: Survey of the proposed route.
Step 5: Selection of structures suited to the terrain and ground and underground conditions.
Step 6: Final design of the distribution line and placement of towers.
Step 7: Issuing of tenders and eventually appointment of contractors for the project.
Step 8: Vegetation clearance and construction of access roads (if 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 areas and protection of erosion sensitive areas.
Step 14: Testing and commissioning.
Step 15: Operation and routine maintenance.

It is estimated that the construction period for this project will be 18-24 months.

Operation Phase.
The proposed powerline will require routine maintenance work throughout the operation phase. The servitude of 31m will be registered (a right of way) along the length of the powerline. During this operation phase vegetation within the servitude will require management if it occurs, only if it impacts on the maintenance of the power line. Minimal maintenance will also be required at the substation.

Decommissioning Phase.

The infrastructure will be decommissioned once it has reached the end of its economic life or is no longer required. If economically feasible/desirable the generic decommissioning activities would comprise the, site preparations, disassembly of the individual components and removal from site and rehabilitation However, it must be noted that, decommissioning and closure phase has not been considered as part of this application as the end use of the site and required decommissioning activities are not known at this time. If decommissioning phase is considered in future, the developer will undertake the required actions as prescribed by the legislation at the time and comply with all relevant requirements administered by any relevant authority and competent authority at that time

Note: An environmental authorisation was granted on 27 June 2013 for a previous Ntshona Substation and 132 kV over head distribution lines application (DEA Ref: 14/12/16/3/3/1/727). The area on Portion 136 of farm LUIPAARDSVLEI 246-IQ in which the application was granted is now being mined by Mogale Alloys. Therefore a new Basic Assessment needs to be compiled for a different substation position and related overhead power lines.

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

R983 Listing 1 Activity 11 (i)	Description of project activity
The development of facilities or infrastructure for the transmission and distribution of electricity – ***(i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.***	***Two 132 KV power lines will be constructed (approximately 2.2 km and 5.3 km in length respectively) outside an urban area to connect from the proposed Ntshona substation to the existing Westgate MTS substation. In addition, the new substation will be constructed and will have a footprint of 1.5 ha with a capacity of 132 kV to facilitate the grid connection.***
R983 Listing 1 Activity 12 (xii)	
The development of – ***(xii) infrastructure or structures with a physical footprint of 100 square metres or more.*** ***where such a development occurs-*** ***(a) within a watercourse***	***Both the overhead power line routes will interact with a watercourse.***
R983 Listing 1 Activity 19 (i)	

The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shell grit, pebbles or rock of more than 5 cubic metres from – ***(i) a watercourse***	***Underground cable installations will involve excavation and replacement of soil within the vicinity of the artificial (seepage) wetland.***

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), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

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

a) Site alternatives (Substation Alternative 1 and Proposed Ntshona Substation)

The substation construction location (the proposed substation site and the alternative site) are both located on **portion 136 of the farm Luipaardsvlei 246 IQ.** The proposed Ntshona substation is located on the premises of Mogale Alloys (Westrand Consolidated Gold Mine). The site is approximately 1.5 ha and is situated in a mining industrial area. The site is an open vacant land within disturbed grasslands predominantly transformed by decades of mining with large slimes dams, surface disturbances and alien plants emphasising the degraded, mining character. Eskom has deliberately targeted a bigger

land area, in order to accommodate the existing lines to provide space for towers and turning lines into the substation.

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The construction of the proposed substation presents optimal grid connection in relation to the proposed power line 132KV.	26° 07’ 44.82” S	27° 44’ 58.73” E
	26° 07’ 44.84” S	27° 45’ 02.35” E
	26° 07’ 49.38” S	27° 44’ 58.79” E
	26° 07’ 49.43” S	27° 45’ 02.35” E
Alternative 2 (four corners)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The construction of the Substation Alternative 1 presents optimal grid connection in relation to the proposed power line 132KV. The alternative substation site is located approximately 150m from the preferred site	26° 07' 44" S	27° 44' 58" E
	26° 07' 45" S	27° 44' 57" E
	26° 07' 46" S	27° 44' 54" E
	26° 07' 47" S	27° 44' 56" E
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

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

In the case of linear activities: **Overhead Powerlines (Overhead Option)**

- **Westgate-Ntshona Line:** This line branches from the proposed Ntshona substation in a southern direction to extend westwards and then south westwards around the slimes dam to eventually turn eastwards approximately 1.5 km into the existing Westgate MTS substation. This alignment occurs on both **portion 136 of the farm Luipaardsvlei 246 IQ and portion 52 on farm Rietvalei 241IQ**. Similar to the Westgate Rand Centre line, the land use along the route comprise of vacant land and mining activities (Mogale Alloys smelter) and disturbed grasslands. (The blue line extending northwards from the proposed Ntshona substation in

Figure 1 is a representation of the existing Rand Centre line and is not part of the Westgate Rand Centre line that is being proposed and therefore was not assessed).

Westgate-Rand Centre Line: This line will loop out from the proposed Ntshona substation in a southern direction to extend westwards and then south westwards around the slimes dam where it splits into two parallel corridors where Eskom proposes to build a double-circuit line using monopoles and single Bear conductor per circuit from the Ntshona substation to eventually turn eastwards approximately 1.5 km into the existing Westgate MTS substation. It must be noted that this Westgate-Rand Centre line is existing and is proposed to be rebuilt to loop into the proposed Ntshona substation. This power line is approximately 5.3 km in length and transverses **portion 136 of the farm Luipaardsvlei 246 IQ and portion 52 on farm Rietvalei 241IQ.** Similar to the Westgate Ntshona line, the land use along the route comprise of vacant land and mining activities (Mogale Alloys smelter) and disturbed grasslands.

Underground cables (Westgate-Ntshona and Westgate-Rand Centre alignments)

Please note: The alternative underground cables are proposed to run on the same footprint alignment as both the proposed overhead power lines (Westgate-Ntshona and Westgate-Rand Centre).

Alternative:	**Latitude (S):**	**Longitude (E):**
Overhead and underground alignments		
Westgate-Ntshona		
• Starting point of the activity	26° 07' 47" S	27° 44' 58" E
• Middle/Additional point of the activity	26° 08' 09" S	27° 44' 56" E
• End point of the activity	26° 07' 46" S	27° 44' 56" E
Westgate-Rand Centre		
• Starting point of the activity	26° 07' 08.6" S	27° 45' 22.4" E
• Middle/Additional point of the activity	26° 08' 00.6" S	27° 44' 33.1" E
• End point of the activity	26° 08' 49.6" S	27° 45' 16.1" E
Alternative S3 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

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

A table has been attached as **Appendix J1** with all the proposed power line coordinates

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

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

c) Technology alternatives

Ntshona substation and Substation Alternative 1
Air Insulated Substation (AIS) vs. Gas Insulated Substation (GIS) AIS are generally used where there is an overhead network and GIS on cable networks. GIS uses SF6 gasses for insulation which have a higher dielectric strength than air which is the insulation medium in AIS. GIS has a smaller foot print than AIS and is usually enclosed indoor (in a building of some sort) whereas AIS is out in the open. However GIS in the context of this project would not be a good option as it would require that we terminate all the overhead lines onto cables creating a source of theft risk. We would still require a 132kV yard for the HV/MV transformers and busbar hence the footprint benefits of GIS would not be realised fully. *This alternative is therefore not preferred for the reasons stated above. This would not be an option for any of the alternative substations*
Alternative 3

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

Overhead Power line vs. Underground Cable

A technical alternative exit with respect to the powerline components, which could be constructed either below ground or above ground. Underground power lines would involve burying the cables at the depth of 1-2 metres. An overhead line would involve the construction of the conductors on pole structures at a height of 24 metres. These two technical alternatives will be assessed for the proposed construction of two 132kV power lines in this Basic Assessment report as follows:

Alternative 1 (preferred alternative)		
Overhead Power line The preferred alternative entails construction of the overhead powerline supported by on either concrete monopoles or self supporting lattice towers depending on the founding conditions (Overhead option is preferred).		
Alternative 2		
Underground Cable The alternative 1 entails laying electric cables for both 132kV powerlines beneath ground and not overhead on poles and towers. This option is not preferred by Eskom		
Alternative 3		

e) No-go alternative

The No-go option implies that the Project does not proceed, and will thus comprise of Eskom not going ahead with the construction of the proposed power lines and substation. Ideally, this would be the preferred alternative as the status quo of the environment remains unchanged, however due to the growing demand for energy and activities that will require electricity in the area, this alternative is not feasible.

This option is assessed as the "No go alternative" in this basic assessment report.

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Ntshona and Substation Alternative 1

Alternative:	**Size of the activity:**
Alternative A1[1] (On site substation preferred)	15000m^2
Alternative A2 (if any)	15000m^2
Alternative A3 (if any)	N/A

or, for linear activities:

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

Overhead lines and underground cables	**Length of the activity:**
Alternative:	
Alternative A1 (Westgate-Ntshona)	2200m
Alternative A2 (Westgate-Rand Centre)	5300m
Alternative A3 (if any)	N/A

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 (Westgate-Ntshona)	31 m servitude
Alternative A2 (Westgate-Rand Centre)	31 m servitude
Alternative A3 (if any)	m^2

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:

Powerline and substation sites can be accessed using already existing access roads and dirt roads (refer to **Figure 4** and **Figure 5**); however upgrading of some of these roads leading to some of the sites may be required to allow easy movement of construction and maintenance machinery.

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.

Figure 4: The existing access and dirt roads near and leading to the proposed substation

Figure 5: The existing access and dirt roads leading to the Westgate MTS substation.

5. LOCALITY MAP

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

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

A Locality map has been included as part of this report as **Appendix A**

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.

The proposed location where the proposed substation and power lines are to be constructed is highly transformed with no areas of sensitivity are indentified within this basis assessment

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.

Colour photographs are enclosed within Appendix B of this report

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.

Facility Illustrations are enclosed within Appendix C

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	**YES✔**	NO	Please explain
The proposed routes and substation are located on privately owned mining properties. Once the proposed overhead lines and substation have been constructed, limited impacts are expected. Eskom will acquire servitudes and affected property owners will be permitted to use areas underneath the lines for activities such as mining. Other activities, except the construction of buildings and tall structures and growing of trees, may also continue below the lines.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	**YES✔**	NO	Please explain
The Gauteng Employment, Growth and Development Strategy (2009) states that the infrastructure network of the Province is a strategic, socio-economic and bulk infrastructure investment and includes: transport and logistics (including roads, rail and air), Information and Communication and Technologies, schools, hospitals, clinics, libraries, universities (if applicable), **electricity services (energy),** water reticulation services, sewage and sanitation services, waste management services, and so forth. Thus the provision of electrical infrastructure is in line with SDF.			

(b) Urban edge / Edge of Built environment for the area	YES	**NO✔**	Please explain
The proposed distribution lines fall outside the urban edge. Therefore the proposed power lines and substation do not impact upon the urban egde.			
(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
The objective of these new power lines and substation is to strengthen the current network capacity as well as to improve the quality of supply in the surrounding areas. The proposed Ntshona substation needs to be constructed to accommodate new loads in the area. The upgrading of the city's electricity network has therefore become a strategic priority, especially the substations and transmission lines. The proposed project entails electricity infrastructure, which is compatible with the Mogale City Local Municipality 2015/16 IDP of which has service delivery and infrastructure development objective.			
(d) Approved Structure Plan of the Municipality	**YES✔**	NO	Please explain
This BAR is not aware of an approved Structure Plan for the Municipality.			
(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
The approval for the application will not compromise the Mogale City Local Municipality's Environmental Management Framework (IDP 2015/16). The proposed routes and the Ntshona substation is located outside areas of concern classified by the Gauteng Conservation Plan (C-Plan).			
(f) Any other Plans (e.g. Guide Plan)	**YES✔**	NO	Please explain
The Gauteng Department of Agriculture and Rural Development's Strategic Plan which intends to Create decent work and building of a growing inclusive economy, provide quality education and skills development, better health care for all, stimulating rural development and food security for all, intensify the fight against crime and corruption, build cohesive and sustainable communities, strengthen the development state and good governance			
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
The proposed development is in line with the National Development Plan and Mogale City Local Municipality SDF's and IDP's, which relate to the provision of infrastructure such as electricity supply.			

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
The objective of these new power lines and substation is to strengthen the current network capacity as well as to improve the quality of supply in the surrounding areas. The existing Rand Centre substation is very old and due to the poor state of equipment, it is on the verge of failure. The upgrading of the city's electricity network has therefore become a strategic priority, especially the substations and transmission lines.			
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
The proposed project is the construction of the Ntshona substation and associated development of two new overhead 132 kV power lines. It will not require any capacity for services such as water and sanitation from relevant Municipalities. It will however provide additional electricity capacity to the area.			
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
The proposed project is the construction of the Ntshona substation and associated development of two new overhead 132 kV distribution power lines. It will not require any capacity for services such as water and sanitation from relevant Municipalities. It will however provide additional electricity capacity to the area.			
7. Is this project part of a national programme to address an issue of national concern or importance?	**YES✔**	NO	Please explain
The upgrading of the electricity network and infrastructure especially the substations and transmission and distribution lines is a strategic priority towards addressing the shortage of electricity in South Africa.			
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
Although the proposed development transverse privately owned mining lands, the locations of the sites were selected such that is within or next to the centre of the load demand.			

9. Is the development the best practicable environmental option for this land/site?	**YES✔**	NO	Please explain
The development is for the construction of the new substation and two power lines. The proposed power line corridors investigated are considered to be the most appropriate routing of this infrastructure taking technical (Eskoms requirements) and environmental social and biophysical issues into consideration. The consolidation of similar infrastructure and other commercial activities (mining) in the landscape is considered the best practicable option to minimise environmental impacts. In terms of the overhead 132kV power lines, Eskom will acquire rights to the servitude, and after completion of construction, affected property owners will be permitted to use the land beneath the line for mining or other activities besides the construction of buildings and tall structures and growing of tall trees			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	**YES✔**	NO	Please explain
The specialist studies undertaken as part of this Basic Assessment, conclude that the proposed routes and construction of the new substation will have low environmental impacts as the proposed site has been significantly transformed by historic mining activities. The potential benefit of the proposed power lines and substation to the area lies in the stimulation of the local economy through a reliable electricity supply, which will increasingly benefit the provision of services. Furthermore the objective of the proposed power lines and substation is to strengthen the network capacity as well as to improve the quality of supply in the area. This will have a positive impact at a local, regional and national level as the sector (mining area) in need of electricity is one of South Africa`s major contributing sector to the country`s economy. The benefits of the project are considered to outweigh the negative impacts.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	**NO✔**	Please explain
No new precedent will be created as the proposed routes and substation are in part adjacent to the existing electricity network supply and infrastructure.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	**NO✔**	Please explain
The proposed development of the Ntshona substation and associated power lines will not negatively affect any person's rights. The servitude rights for the line will be acquired by Eskom and financial compensation will be paid where applicable.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	**NO✔**	Please explain
The proposed project takes place in an area outside the urban edge. The urban edge will not be compromised.			

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	**YES✔**	NO	Please explain

The project will conform to the objectives of the following SIPS:

SIP 6: Integrated Municipal Infrastructure Project
Develop a national capacity to assist the 23 least resourced districts (17 million people) to address all the maintenance backlogs and upgrades required in water, **electricity** and sanitation bulk infrastructure.

SIP 10: Electricity Transmission and Distribution for all
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.

15. What will the benefits be to society in general and to the local communities?	Please explain

The provision of a reliable electricity network and provision of capacity for new users.

16. Any other need and desirability considerations related to the proposed activity?	Please explain

The proposed project will ensure that economic growth continues in the region.

17. How does the project fit into the National Development Plan for 2030?	Please explain

The following NDP sections area relevant: Elements Of A Decent Standard Of Living – provision of Electricity

Women And The Plan
Access to safe drinking water, electricity and quality early childhood education, for example, could free women from doing unpaid work and help them seek jobs

Due to a reduction in capital spending from effect, South Africa has missed a generation of capital investment in roads, rail, ports, electricity, water, sanitation, public transport and housing. To grow faster and in a more inclusive manner, the country needs a higher level of capital spending.

Chapter 4: Economic Infrastructure
The proportion of people with access to the electricity grid should rise to at least 90 percent by 2030, with non-grid options available for the rest.
Action 20 of The National Development Plan also considers the Ring-fencing the electricity distribution businesses of the 12 largest municipalities (which account for 80 percent of supply), resolve maintenance and refurbishment backlogs and develop a financing plan, alongside investment in human capital.

Actions
21. Revise national electrification plan and ensure 90 percent grid access by 2030 (with balance met through off-grid technologies).

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 general objective of the Integrated Development Plan has been taken into consideration for this Basic Assessment Report by means of indentifying, predicting evaluating the actual and potential impacts on the environment, social economic conditions and cultural heritage component. The risks, consequences and alternatives as well as option for mitigation of activities have also been considered with a view to minimise negative impacts, maximise benefits, and promote compliance with the principles of environmental management.
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.
Ecological, heritage, geotechnical, visual, and wetland specialists were appointed to investigate potential environmental impacts. Identified environmental impacts were assessed and mitigation measures provided to control and manage these environmental impacts. Interested and Affected parties, land owners and relevant stakeholders were identified and involved throughout the Basic Assessment process and their comments will be addressed and recorded as part of this assessment

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
National Environmental Management Act (NEMA), No. 107 of 1998.	In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation. A Basic Assessment process is required to be undertaken for the proposed project.	Department of Environmental Affairs	1998
National Water Act No 36 of 1998.	The alternative power line corridor is within 500 m of a watercourse.	Department of Water Affairs	1998
National Environmental Management Waste Act No 59 of 2008	No waste license activities are applicable to this project. The developer will however be required to store and manage waste in accordance with the	Department of Environmental Affairs	2008

	requirements of this Act and associated Standards.		
National Heritage Resources Act No. 25 of 1999	Under section 38. (1) of the NHRA any person who intends to construct a powerline or other linear development exceeding 300m in length must notify the responsible heritage resources agency of its intention. As the proposed linear development exceeds 300m in length, a Heritage Assessment has been undertaken as part of this Basic Assessment (refer to Appendix D). No identified heritage sites were reported on site. However, should any heritage sites be unearthed during excavations, a permit would be required to be obtained from SAHRA.	South African Heritage Resources Agency (SAHRA) The Provincial Heritage Resources Authority Gauteng (PHRAG)	1999

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?

Could not be determined at this stage m^3

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

Construction rubble/ solid waste will be temporarily stored on site in designated waste skips and then removed by an appropriate waste contractor appointed by the main construction contractor to an approved landfill site. This will be managed through the EMPr. It must be noted that according to the Mogale City Local Municipality Waste Management By-Laws (2007), the municipality can render a service for the collection and removal of business, domestic, garden, builders, dry industrial refuse, bulky mass, special refuse from premises of which is a recommendation of this BAR.

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

General waste removed from site will be disposed of at the Luipaardsvlei landfill site in Krugersdorp which is the nearest registered landfill. Safe disposal certificates must be obtained and kept on site for the duration of the construction phase. It must be noted that according to the Mogale City Local Municipality Waste Management By-Laws (2007), the municipality can render a service for the collection and removal of business, domestic, garden, builders, dry industrial refuse, bulky mass, special refuse from premises of which is a recommendation of this BAR.

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)?

N/A

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

N/A

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

N/A

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

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?	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 should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	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 should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

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

Not Applicable

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 of Ntshona substation and two power lines Westgate-Ntshona and Westgate-Rand Centre), dust and vehicular emissions will be released as a result of earthmoving machinery. However these emissions will have a short term impact on the immediate surrounding area and thus no authorisation will be required for such emissions. Appropriate dust suppression measures must be implemented (e.g. removal of vegetation in a phased manner and using recycled water for spraying dust to reduce the impacts).

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:

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 and its immediate surroundings. No noise will be generated during the operational phase of the development

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.	

14. ENERGY EFFICIENCY

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

N/A

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

N/A

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): **A – Substation sites**

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 Province
District Municipality	West Rand District Municipality
Local Municipality	Mogale City Local Municipality
Ward Number(s)	Ward 26
Farm name and number	Luipaardsvlei 246-IQ
Portion number	**Westgate Ntshona substation** Portion 136 Luipaardsvlei 246-IQ
SG Code	**Farm Luipaardsvlei** TOIQ00000000024600136

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:

Mining

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.

Substations

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	✔
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain	✔	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:		**Alternative S2 (if any):**		**Alternative S3 (if any):**	
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 should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the 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 should 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.

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 - Roads)**

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:

Major road – The R28 is an arterial road with high traffic capacity. The activity will impact on the road by way of slight traffic delays near the access/dirt road and R28 juncture leading into the Mogale Alloys mine property where the substation will be located. However; this can be mitigated by placing construction road side signage and deploying construction points men to ease traffic. Railway line – This railway line is not a public transportation line but is more for industrial usage by the mine to transport their mined ore. The impacts will be minor however as the railway line will not be crossed in any way or for any reason except perhaps for emergency situations.

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:

N/A

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:

N/A

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✔**

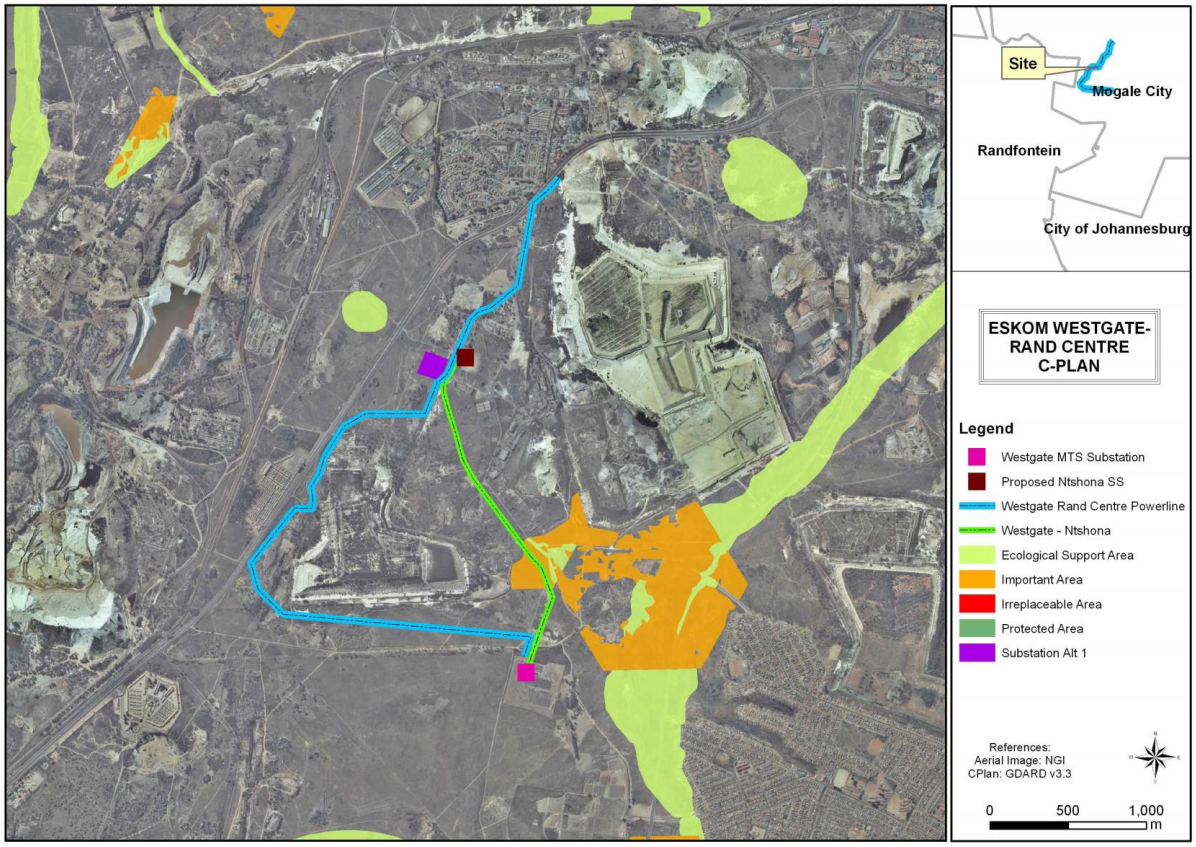

Figure 6: Gauteng Conservation Plan indicating a CBA (Important) area along the Westgate-Ntshona powerline.

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

Note: The Alternative substation site is located on an area where an Environmental Authorisation was granted on 27 June 2013 for a previous Ntshona Substation and 132 kV over head distribution lines application (DEA Ref: 14/12/16/3/3/1/727). The site is now currently being mined. The Substation Alternative 1 is indicated on ***Figure 1.***

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	
N/A		

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 was undertaken for this proposed development, see **Appendix D3**

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:

The unemployment rate for both the West Rand and Mogale City of which Krugersdorp is located is slightly above the national unemployment rate of 24.9%. Mogale City has an unemployment rate of 26.3% with 41 129 unemployed people (Mogale City LED 2011)

Economic profile of local municipality:

Mogale City is located within the West Rand District Municipality in Gauteng. According to the Mogale City LED 2011 the economic growth for the local municipality area has been hovering between 2% and 3%. Approximately 8.5% of households in Mogale City Local Municipality earn no income while the majority (50.6%), of households earn between R9,600 and R76,000 a year.

Annual Household Income
R1-R4800 – 59%
R4801-R9600 - 8.5%
R9601-R19200 - 16.6%
R19201-R38400 - 19.6%
R38401-R76800 - 14.4%

Level of education:

By 2009, the total number of 13 231 persons had no schooling compared to the figure of 16 743 registered in 2006. **Education level** No School - 7.6% Primary School - 29.2% High School - 35.5% Grade 12 - 22.0% Tertiary - 4.0%

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R1 325 800.00	
What is the expected yearly income that will be generated by or as a result of the activity?	This information will be provided at a later stage	
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?	Unknown	
What is the expected value of the employment opportunities during the development and construction phase?	Unknown	
Uknown	Unknown	
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unknown	
What is the expected current value of the employment opportunities during the first 10 years?	Unknown, these assessments are done late in the process, during construction and operational phase.	
What percentage of this will accrue to previously disadvantaged individuals?	Unknown, these assessments are done late in the process, during construction and operational phase.	

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 etc).**
Natural	1%	No pure natural vegetation exists.
Near Natural (includes areas with low to moderate level of alien invasive plants)	5%	Very little remnant grasslands were found on site
Degraded (includes areas heavily invaded by alien plants)	25%	The disturbed grassland along the lines included a limited number forb species, compared to what is expected to occur in species rich, natural or semi-natural grasslands. In addition, a high frequency of ruderal weeds such as Tagetes minuta (khaki weed), Bidens pilosa (blackjacks), Conyza alba (fleabane) and the grass Pennisetum clandestinum (kikuyu) were recorded. The indigenous herbaceous layer was limited to grasses such as Hyparrhenia hirta (common thatching grass) and Cynodon dactylon (couch grass), while the weedy forb Gomphocarpus fructicosa (milk weed) were abundant.
Transformed	60%	The majority of the powerline routes are situated within

(includes cultivation, dams, urban, plantation, roads, etc)		transformed land. The most common species recorded included invasive tree species (Eucalyptus, Pinus and Populus species, as well as the wattle Acacia mearsnii), the invasive grasses Cortaderia selloana (pampas grass) and Arundo donax (giant reed), with herbaceous species dominated by weedy and pioneer species such as Tagetes minuta (khakibush) and Datura ferox (large thorn apple).

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)

The study site is situated within the Grassland Biome of South Africa. The proposed Ntshona substation and powerline routes are situated within the Soweto Highveld Grassland which is nationally classified as an Endangered vegetation type (Mucina & Rutherford, 2006) (Dimela Eco Consulting 2012). The Soweto Highveld Grassland is listed as a "Vulnerable" ecosystem (Section 52(1) (a) of the National Environmental Management: Biodiversity Act (Government Gazette 34809, Government Notice1002, 9 December 2011). However, the Westgate-Ntshona powerline traverses a small portion of a Critical Biodiversity Area (CBA) classified as Important to reach conservation targets. (Please refer to **Figure 6** for the Gauteng Conservation Plan indicating a CBA (Important) area along the Westgate-Ntshona powerline). The assessment undertaken by Dimela Eco Consulting in 2012 indicated that much of the study area was transformed with no natural vegetation remaining. Some secondary grasslands were recorded that were classified as being of a medium to low sensitivity. However, these areas are currently mined and are now classified as transformed with no natural vegetation remaining.

The majority of the powerline routes are situated within transformed land. According to the supplementary specialist assessment, the most common species recorded included invasive tree species (Eucalyptus, Pinus and Populus species, as well as the wattle Acacia mearsnii), the invasive grasses Cortaderia selloana (pampas grass) and Arundo donax (giant reed), with herbaceous species dominated by weedy and pioneer species such as Tagetes minuta (khakibush) and Datura ferox (large thorn apple). In addition, a high frequency of ruderal weeds such as Tagetes minuta (khaki weed), Bidens pilosa (blackjacks), Conyza alba (fleabane) and the grass Pennisetum clandestinum (kikuyu) were recorded. The indigenous herbaceous layer was limited to grasses such as Hyparrhenia hirta (common thatching grass) and Cynodon dactylon (couch grass), while the weedy forb Gomphocarpus fructicosa (milk weed) were abundant. (Please refer to **Figure 7** for the vegetation groups the line transverses)

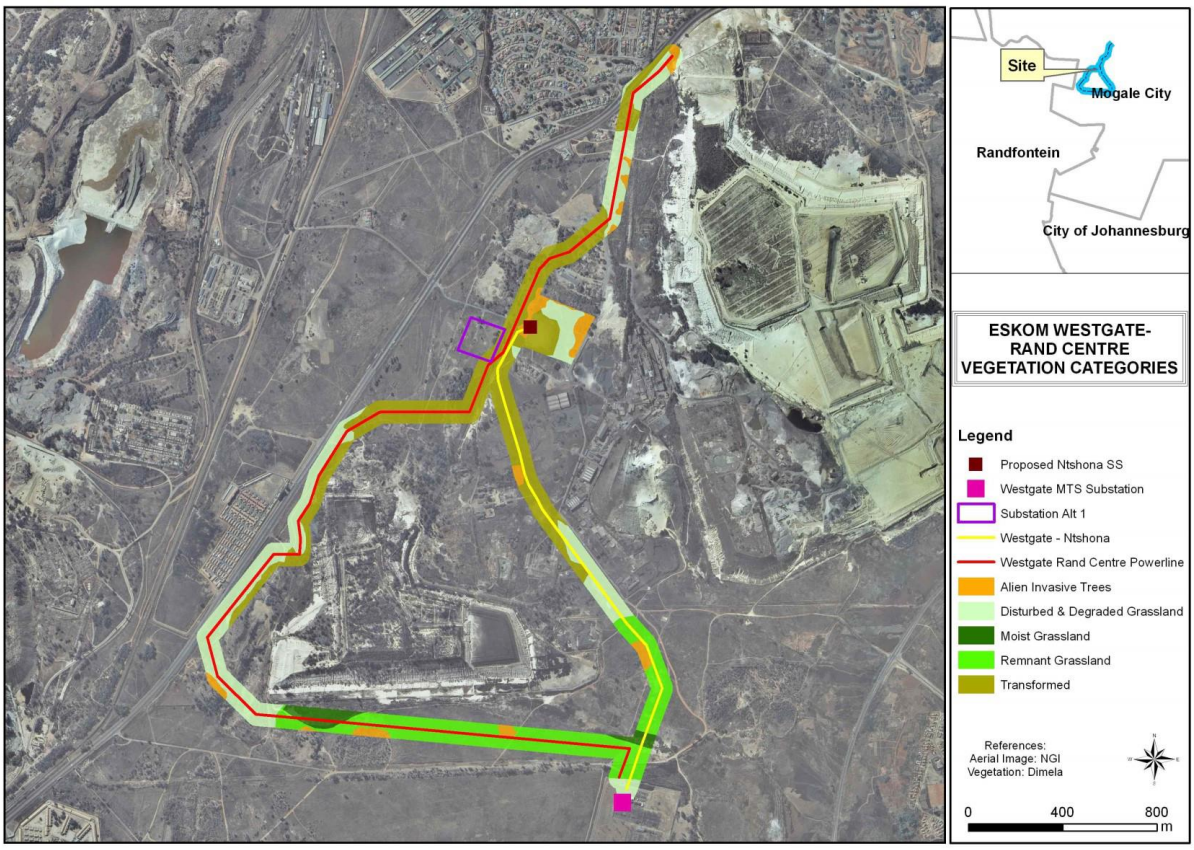

Figure 7: Vegetation groups observed along the proposed powerline routes and on and around the proposed Ntshona substation locality.

Section B Copy No. (e.g. A): **B – Power lines**

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

5. 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 Province
District Municipality	West Rand District Municipality
Local Municipality	Mogale City Local Municipality
Ward Number(s)	Ward 26
Farm name and number	Luipaardsvlei 246-IQ and Rietvalei 241-IQ
Portion number	Portion 136 of Luipaardsvlei 246-IQ Portion 52 of Rietvalei 241-IQ
SG Code	**Farm Luipaardsvlei** TOIQ00000000024600136 **Farm Rietvalei** TOIQ00000000024100052

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:

Mining

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✔**

10. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Power lines

Westgate-Ntshona:

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

Westgate-Rand Centre:

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

11. 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	✔
2.2 Plateau		2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain	✔	2.9 Seafront	
2.10 At sea					

12. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

Powerlines

	Westgate-Ntshona:		**Westgate-Rand Centre:**		**Alternative S3 (if any):**	
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 should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the 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.

13. GROUNDCOVER

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

Natural veld - good condition[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.

14. 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.

One wetland was recorded within 500 m of the study site. The central part of the wetland is expected to be impacted by the proposed infrastructure. The wetland is located south of mining dumps and tailings dams and through gradual changes in soil and vegetation indicators, is joined to the more natural watercourse east of the study site. The wetland is classified as Seepage wetland. It is terraced and divided into sections by channels as well as dam walls made of soil. The first terrace occurs adjacent to a dammed area south of the mine dump. Due to the highly disturbed nature of the area and lack of historical data for absolute confirmation, the wetland assessment found that it is likely that the wetland is artificial.

15. LAND USE CHARACTER OF SURROUNDING AREA

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 - Roads)**

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:

Major road – The R28 is an arterial road with high traffic capacity. The activity will impact on the road by way of slight traffic delays near the access/dirt road and R28 juncture leading into the Mogale Alloys mine property where the substation will be located. However; this can be mitigated by placing construction road side signage and deploying construction points men to ease traffic. Railway line – This railway line is not a public transportation line but is more for industrial usage by the mine to transport their mined ore. The impacts will be minor however as the railway line will not be crossed in any way or for any reason except perhaps for emergency situations.

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:

N/A

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:

N/A

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✔**

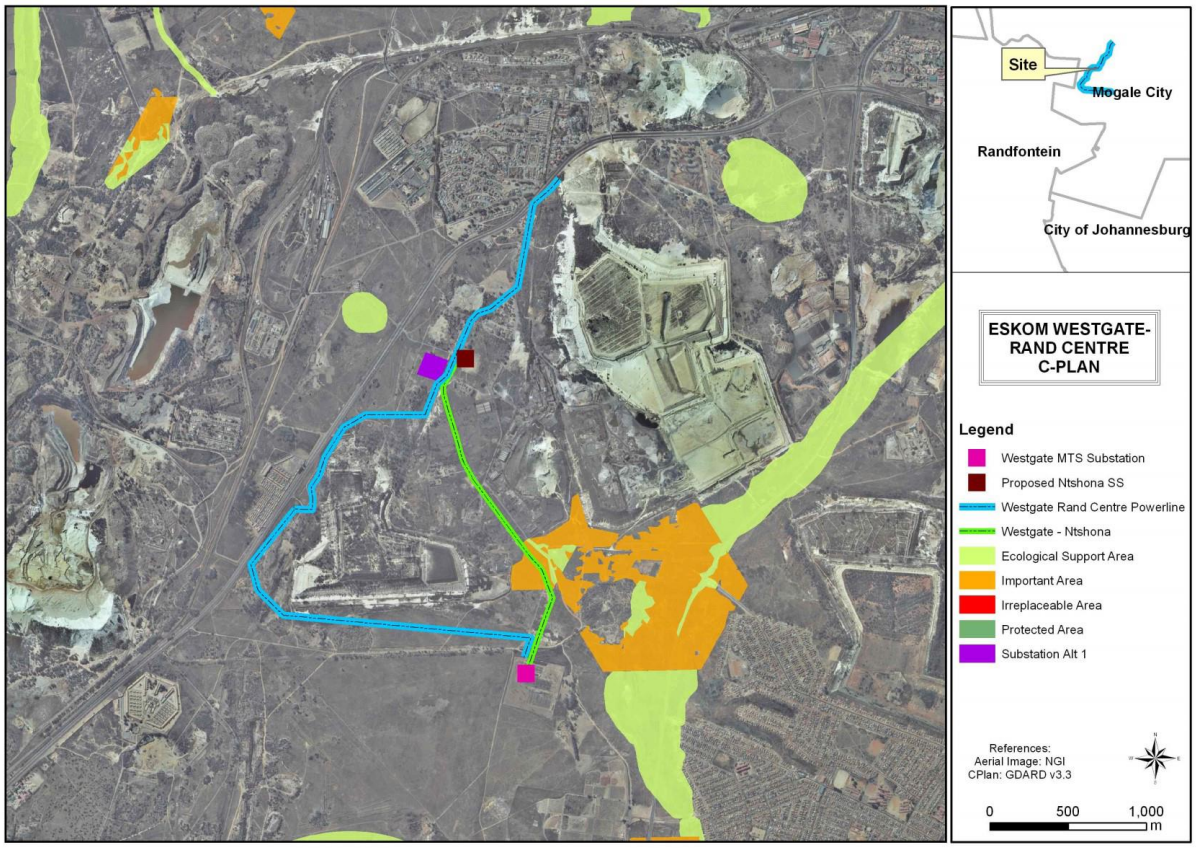

Figure 6: Gauteng Conservation Plan indicating a CBA (Important) area along the Westgate-Ntshona powerline.

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

Note: The Alternative substation site is located on an area where an Environmental Authorisation was granted on 27 June 2013 for a previous Ntshona Substation and 132 kV over head distribution lines application (DEA Ref: 14/12/16/3/3/1/727). The site is now currently being mined. The Substation Alternative 1 is indicated on ***Figure 1.***

16. 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
N/A		

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 was undertaken for this proposed development, see **Appendix D3**

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.

17. 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:

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b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R1 325 800.00	
What is the expected yearly income that will be generated by or as a result of the activity?	This information will be provided at a later stage	
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?	Unknown	
What is the expected value of the employment opportunities during the development and construction phase?	Unknown	
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How many permanent new employment opportunities will be created during the operational phase of the activity?	Unknown	
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18. 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 etc).
Natural	1%	No pure natural vegetation exists.
Near Natural (includes areas with low to moderate level of alien invasive plants)	5%	Very little remnant grasslands were found on site
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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.

Westgate-Ntshona and Westgate-Rand Centre Lines

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)

The study site is situated within the Grassland Biome of South Africa. The proposed Ntshona substation and powerline routes are situated within the Soweto Highveld Grassland which is nationally classified as an Endangered vegetation type (Mucina & Rutherford, 2006) (Dimela Eco Consulting 2012). The Soweto Highveld Grassland is listed as a "Vulnerable" ecosystem (Section 52(1) (a) of the National Environmental Management: Biodiversity Act (Government Gazette 34809, Government Notice1002, 9 December 2011). However, the Westgate-Ntshona powerline traverses a small portion of a Critical Biodiversity Area (CBA) classified as Important to reach conservation targets. (Please refer to **Figure 6** for the Gauteng Conservation Plan indicating a CBA (Important) area along the Westgate-Ntshona powerline). The assessment undertaken by Dimela Eco Consulting in 2012 indicated that much of the study area was transformed with no natural vegetation remaining. Some secondary grasslands were recorded that were classified as being of a medium to low sensitivity. However, these areas are currently mined and are now classified as transformed with no natural vegetation remaining.

The majority of the powerline routes are situated within transformed land. According to the supplementary specialist assessment, the most common species recorded included invasive tree species (Eucalyptus, Pinus and Populus species, as well as the wattle Acacia mearsnii), the invasive grasses Cortaderia selloana (pampas grass) and Arundo donax (giant reed), with herbaceous species dominated by weedy and pioneer species such as Tagetes minuta (khakibush) and Datura ferox (large thorn apple). In addition, a high frequency of ruderal weeds such as Tagetes minuta (khaki weed), Bidens pilosa (blackjacks), Conyza alba (fleabane) and the grass Pennisetum clandestinum (kikuyu) were recorded. The indigenous herbaceous layer was limited to grasses such as Hyparrhenia hirta (common thatching grass) and Cynodon dactylon (couch grass), while the weedy forb Gomphocarpus fructicosa (milk weed) were abundant. (Please refer to **Figure 7** for the vegetation groups the line transverses)

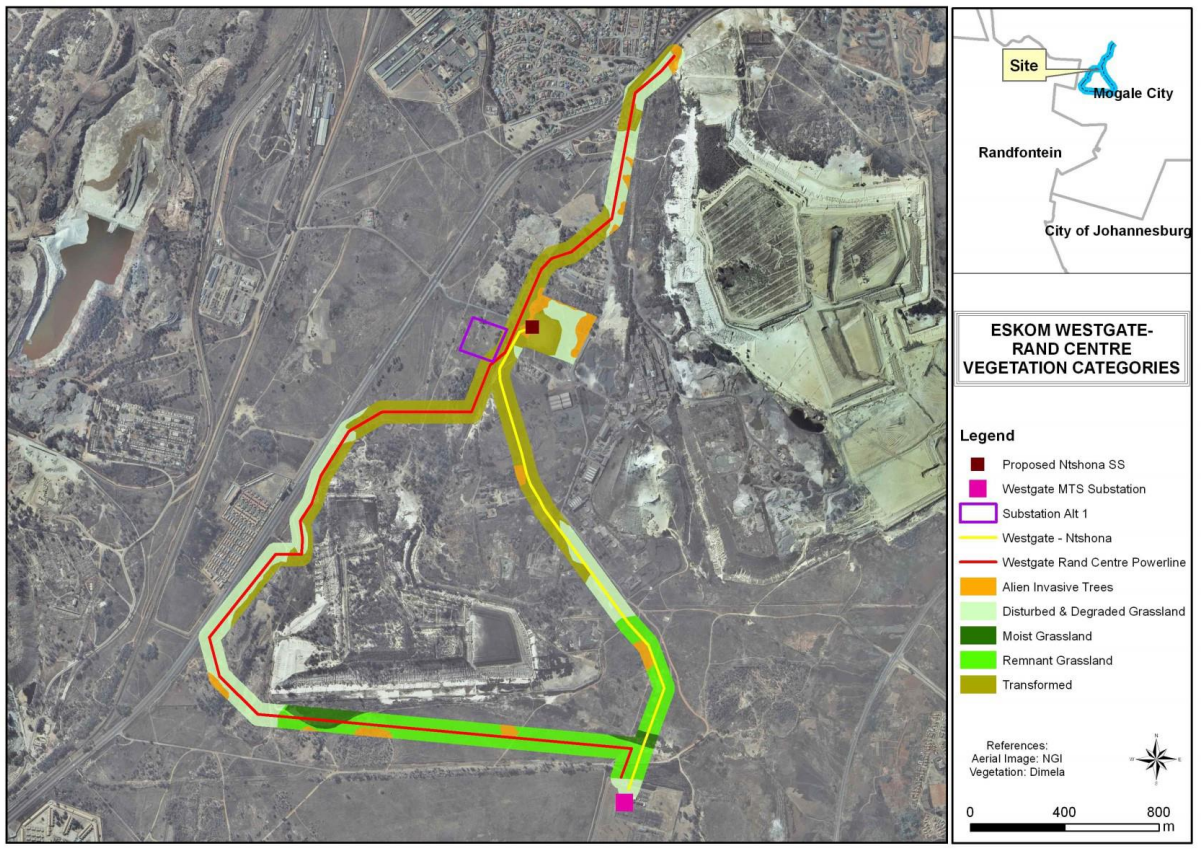

Figure 7: Vegetation groups observed along the proposed powerline routes and on and around the proposed Ntshona substation locality.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Krugersdorp News	
Date published	14 October 2015	
Site notice position	**Latitude**	**Longitude**
	26°07'48.05"S	27°45'01.08"E
	26°08'25.00"S	27°45'20.03"E
	26°08'47.985"S	27°45'18.89"E
	26°08'36.41"S	27°45'07.78"E
Date placed	14 October 2015	

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

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 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 (tel number or e-mail address)
Mr Hannes Botes	DRD Gold Sustainability	hannes.botes@drdgold.com
Mr Warren Fischer	Rand Lease propoerties	wfischer@randleases.co.za
Mr Mukesh Budhoo	Mogale Alloys	mbudhoo@mogale.co.za
Mr Aubrey Schroder	St Eleadah Complex	aubreysc@gmail.com
Ms Karin Max	Wildlife and Environment Society of South Africa (WESSA) - Regional manager	kmarx@wessanorth.co.za
Ms Carla Hudson	Wildlife and Environment Society of South Africa (WESSA) - Regional manager - Northern Areas Region	chudson@wessanorth.co.za
Mr Hannes Botes	DRD Gold Sustainability	hannes.botes@drdgold.com
Ms Lauren Rota	Sasol	lauren.rota@sasol.com
Mr Johan Botha	Sasol	jj.botha@sasol.com
Mr Marei Mashabela	Sasol	marei.mashabela@sasol.com

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
- 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
Ms Lauren Rota Sasol Environmental Monitoring – Dear Thabang, Thank you for sending us this invitation; I have forwarded along to my Sasol colleagues to identify the right person to participate, and they will register directly with you.	Afternoon Mr Botha, (cc Lauren Rota) Thank you, your comment has been duly noted. Consideration will be given to the Sasol servitudes and services during the Basic Assessment process.
Mr Johan Botha Senior Manager Land and Rights Mining Rights and Properties Sasol Mining (Pty) Ltd - Sasol has gas pipelines running in the vicinity/on the route of the proposed power lines. Consideration to be given to the Sasol servitudes and services.	Afternoon Mr Botha, Thank you, your comment has been duly noted. Consideration will be given to the Sasol servitudes and services during the Basic Assessment process.
Marei Mashabela Sasol Principal Land and Rights OfficerMining Rights and PropertiesSasol Mining (Pty) Ltd – Hallo Thabang Please refer to the attached Registration and Comment sheet.	Good Afternoon Marei, Thank you. Your comments have been received in order. You have been registered on our project database.
Mr Petrus Steyn Sibanye Gold – Attached please find IAP completed registration form.	This email serves to notify you that Petrus Steyn of Sibanye Gold has been registered as an interested and affected party on Envirolution's database for the mentioned project.
Ward Councillor 20, Cllr Matthys Van Tonder –	We (Envirolution) will recommend that Eskom inform the community before construction begins.

Can Eskom please inform the community when the project is due to commence.	

4. COMMENTS AND RESPONSE REPORT

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

Please note that this Final Basic Assessment Report did not receive comments on the Draft Basic Assessment Report from the national competent authority (Department of Environmental Affairs) and the provincial authority (Gauteng Province Department of Agriculture and Rural Development) within the stipulated 30 review period. Proof of reminder to submit comments is attached as Appendix E9. This Basic Assessment would like to bring attention to the Environmental Impact Regulations 2014, Regulation 4 which states "When a State department is requested to comment in terms of these Regulations, such State department must submit its comments in writing within 30 days from the date on which it was requested to submit comments and if such State department fails to submit comments within such 30 days, it will be regarded that such State department has no comments". However, this Basic Assessment has received comments on the DBAR from the Mogale City Local Municipality and are attached as Appendix E8 and also stipulated in the Comments and Response report in Appendix E3.

With the aim of honouring stipulated timeframes, this Final Basic Assessment Report was submitted to DEA without their comments on the DBAR and without comments from GDARD.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Public Works	Mr Charles Beaurine	012 326 2447		charles.beauraine@dpw.gov.za	
Department of Health	Ms S Ngcobo			nonhlanhla@gpg.gov.za	
West Rand District Municipality.	Mr Musa Zwane	011 411 5125		mzane@wrdm.gov.za	

Environmental Department					
West Rand District Municipality. Environmental Department	Ms Hendrina Hamer	011 411 5125		hhamer@wrdm.gov.za	
West Rand District Municipality. Environmental Department	Ms Olivia Caldeira	011 411 5125		ocaldeira@wrdm.gov.za	
Department of Water Affairs and Sanitation (DWA)	Ms Lilian Zwane	012 392 1367		SiwelaneL@dwa.gov.za	
Department of Water Affairs and Sanitation (DWS)	Mr Vongani Mhinga	012 392-1503		MhingaV@dwa.gov.za	
Department of Public Transport, Roads and Works	Mr Dennis Emmet	012 326 2447		Dennis.emmet@gauteng.gov.za	
Gauteng Department of Agriculture & Rural Development	Mr Boniswa Belot	011 355 1212		boniswa.belot@gauteng.gov.za	
Mogale City Local Municipality: Environment	Mr Peter Tladi	011 951 2112		peter.tladi@mogalecity.gov.za	
Mogale City Local Municipality: Environment	Mr Koogan Naidoo	011 951 2113	011 660 1507	koogan.naidoo@mogalecity.gov.za	
National Department of Housing	Mr Andre Van Der Walt	011 355 4534		andrevandewalt@gov.za	

Ward Cllr Ward 20	Mr Jakkie Naude	082 8805 815		naude.jakkie@gmail.co.za	
Ward Cllr Ward 26	Mr Mattys Van Tonder	076 2942 998			

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

Proof of notification is enclosed within **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.

A project database is enclosed within **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 should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

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

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

PLANNING AND DESIGN PHASE			
Activity	**Impact summary**	**Significance**	**Proposed mitigation**
Construction of Ntshona substation and Westgate-Ntshona and Westgate-Rand Centre power line alignments			
PLANNING AND DESIGN PHASE	***Direct impacts:*** A direct impact as a result of good planning and design is protecting the environment but still providing a good product / service for the Krugersdorp area in terms of reliable electricity supply.	Positive Impact	The proposed Project implementation as well as suggested design measures and mitigation measures must be monitored.
	Indirect impacts: An indirect impact as a result of proper planning and design is saving on costs in the long term but also ensuring that the proposed Project has a better success rate and is more sustainable.	Positive Impact	The proposed Project implementation as well as suggested design measures and mitigation measures must be monitored. A detailed geotechnical investigation be conducted along the power line route as well at the two substation positions (preferred & alternative 1) in order to verify the desk study and to provide site specific appropriate founding solutions.
	Cumulative impacts: None	N/A	N/A

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the construction phase of the proposed overhead power lines and underground cable alternatives and construction of the substation are provided below.

CONSTRUCTION PHASE	**Ntshona substation and Substation Alt 1** **Note: For the purposes of this impact assessment and clarification, the proposed Ntshona and Substation Alternative 1 sites will be assessed collectively as these are located in a similar geographical environment and within 150m distance of each other. Impacts from the abovementioned substations are similar.** Please also refer to the draft EMPr, Specialist assessment and Eskom's minimum standards for vegetation management and erosion control reports for details on other applicable mitigation measures **Any other individuals of this species, or any other bulbous species unearthed by construction, should be replanted as part of rehabilitation of the disturbed soils. An ecologist should be consulted as to the species identification.**			
Potential impacts:	**Impact summary**	**Significance rating of impacts: (without mitigation)**	**Proposed mitigation: Construction**	**Significance rating of impacts after mitigation:**
1.Impacts on flora	***Direct impacts:*** The construction of the substations will inevitably require the removal/clearing of transformed vegetation. Areas where structures are stored would flatten vegetation that could be detrimental to the persistence thereof. The proposed substation construction will impact largely on transformed and secondary vegetation that were found to be of low conservation value (sensitivity).	**Medium**	1. The transformed, secondary and disturbed vegetation around the substation locations should be utilised for all construction related activities (e.g. construction camps) and the impact area on remnant grasslands should be minimised where possible. 2. The *Hypoxis hemerocallidea* species that could be potentially found must be removed and replanted on suitable areas. 3. Any other individuals of this species, or any other bulbous species unearthed by construction, should be replanted as part of rehabilitation of the disturbed soils. An ecologist should be consulted as to the species identification. 4. A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to sensitive environs or vegetation not assessed during this assessment. 5. Prohibit construction vehicles access into natural areas beyond the demarcated boundary of the construction area.	**Low**

			6. Formalise access roads and where possible, make use of existing roads, rather than creating new routes through naturally vegetated areas. 7. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction. 8. After construction, the land should be rehabilitated by sowing an indigenous grass mix, containing species that naturally occur within the Soweto Highveld Grassland.	
	Indirect Impacts: • Soils will be exposed to erosion. • Increased storm water runoff. • Loss of insect and other fauna habitat • Colonisation of disturbed areas by alien and invasive species.	**Medium**	As detailed above	**Low**
	Cumulative impacts: • The clearance or loss of flora lessens the contribution to the ecosystem function.	**Very Low**	As detailed above	**Negligible**
2. Impacts on fauna	***Direct impacts:*** Habitat destruction by means of vegetation/tree clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted	**Medium**	1. The contractor/contractors must ensure that no animals are disturbed, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance.	**Low**

	that can be ameliorated. ***Indirect impact:*** • No redflagged species are listed to be impacted upon. • Increased habitat fragmentation & loss of connectivity. • Increased anthropogenic encroachment. ***Cumulative impact:*** • No loss of ecosystem function is anticipated as the study area his heavily degraded.	 **None** **None**	2. As far as possible, restrict construction activities to the development site. 3. Education of the construction staff about the value of wildlife and environmental sensitivity. - As detailed above As detailed above	 **-** **-**
3. Increased soil erosion:	***Direct impacts:*** Erosion of the soil surface due to surface vegetation being removed, causing exposed soil conditions where rainfall and high winds can cause mechanical erosion.	**Medium**	1. If at all possible, construction activities should preferably take place during the dry winter months. 2. Stockpiles (if applicable) must be covered with suitable material during windy conditions. 3. Clearance of vegetation for access road should be minimized and delayed to minimized exposed areas that might be prone to erosion during heavy rains 4. Dust suppression is necessary for stockpiles older than a month. 5. Stockpiles should not be higher than 2 m to avoid wind erosion 6. Soil stockpiles muste be bermed to avoid leacheate	**Low**

			and erosion during rain events. 7. The energy / velocity of storm water runoff should be dissipated using metre drains at appropriate intervals. 8. Grading of the site is required after construction to ensure free flow of runoff and to prevent ponding of water 9. The topsoil must be stockpiled separately and used for rehabilitating around the substation site. Should topsoil remain, the locals should be encouraged to take the soil and place it on their vegetable patches. 10. Adequate soil erosion control measures must be implemented during this phase.	
	Indirect impacts: • Contribution to sedimentation of nearby watercourses. • Increased storm water runoff. • Limited vegetation growth/cover.	**Medium**	As detailed above	**Low**
	Cumulative impacts: • Potential degradation of wetlands. • Habitat fragmentation of aquatic fauna	**Low**	As detailed above	**Low+**
4. Noise impacts	***Direct impacts:*** • Noise created by	**Medium**	**1.** Construction activities to be limited to office hours on weekdays as far as possible**.**	**Low**

	construction vehicles and machinery during construction activities. ***Indirect impacts:*** • An additional noise burden to nearby West	**Medium**	2. The contractor must ensure that noise levels remain within acceptable limits 3. Prevent the generation of a disturbing or nuisance noises 4. Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors. 5. Ensuring compliance with the Noise Control Regulations. 6. In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development. As detailed above	**Low**

	Village suburb and Eleanah complex residents. ***Cumulative impacts:*** Adding to the overall noise ambient of the study area.	**Low**	As detailed above	**Low+**
5.Impacts on ground water:	***Direct impacts:*** Hydrocarbon leakages from plant vehicles to the ground and contaminating the soil.	**Medium**	1. Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants. 2. All cement mixing must occur on impervious surfaces and within controlled bermed areas. 3. Oil spillages must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site. 4. Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the place of construction. 5. No materials may be discharged to watercourses and resoureces from the construction camps. 6. All hydrocarbons must be stored in a proper bunded facility	**Low**
	Indirect impacts: • Leakages leading to pollute underground water resources. • Contaminated soils washing away into drainage lines and watercourses.	**Medium**	As detailed above	**Low**

	Cumulative impacts: • Degraded groundwater resources. • Pollution in nearby watercourses.	**Medium**	As detailed above	**Low**
6.Impacts of storm water:	***Direct impacts:*** Flooding and ponding of low lying areas.	**Medium**	1. No stockpiles or construction materials may be stored or placed within any drainage lines that may be in close proximity of storm water drains. 2. No stockpiles or construction materials may be stored or placed in close proximity to storm water drains. 3. The storm water system especially discharge points must be inspected and damaged areas must be repaired if required.	**Low**
	Indirect impacts: • Transporting of pollutants to watercourses and sensitive areas. • Sediment runoff into watercourses and catchments. • Increased flood risks	**Medium**	As detailed above.	**Low**
	Cumultative impacts: Degrading of the water quality of rivers and water bodies.	**Medium**		**Low**
7.Impact on dust and air quality:	***Direct impacts:***	**Medium**	1. Continuous watering of the site should be carried out to prevent dust pollution during windy and dry	**Low**

	The generation of dust from movement of Construction machinery and heavy vehicles. ***Indirect impacts:*** • Likely to generate dust which is likely travel and be perceptible by adjacent residents. • Trucks may potentially distribute dust along internal access roads. ***Cumlative impacts:*** • Overall rise in dust levels around the study site. • Health issues for adjacent residents.	 **Low** **Low**	conditions. 2. A continuous dust monitoring process needs to be undertaken during construction. 3. Speed restriction of 20km/h must be implemented for all construction vehicles. 4. All vehicles transporting friable materials such a sand, rubble etc must be covered by a tarpaulin or wet down.	 **Low+** **Low+**
8.Impact on visual and aesthetic quality:	***Direct impacts:*** Stockpiled materials; workforce; and construction sites may cause visual impacts in the area.	**Medium**	1. Ensure that no litter, refuse, waste, rubbish, rubble, debris and builders wastes generated on the premises be placed, dumped or deposited on adjacent or surrounding properties including road verges, roads or public places and open spaces during or after the construction period. 2. All waste/litter/rubbish etc must be disposed of at an approved dumping site as approved by the Council. 3. Supply sufficient garbage bins throughout the site and empty regularly. 4. Ensure good housekeeping is implemented at all	**Low**

			times. 5. Keep the property neat and litter free at all times and maintain the landscaped areas. 6. Indigenous vegetation should be used to create habitats that attract the natural fauna in the area as far as possible 7. The Construction camp must be contained to prevent any visual intrusion and be kept in a clean and orderly state at all times. 8. Landscaping should be maintained.	
	Indirect impacts: None ***Cumulative impacts:*** Undesired visual aesthetics	**Low-**	---	**---** **Low+**
9. Impacts on the social environment	***Direct impacts:*** Local labour can benefit from construction employment opportunities.	**Low+**	1. All adjacent landowners must be informed of the construction processes prior to commencement of construction activities. 2. Notification must include possible timeframes for stoppages. 3. Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners. 4. .Develop a Code of Conduct to cover the activities of the construction workers housed on the site. Ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct. Construction workers should attend a brief session before they commence activities. The aim of the briefing session is to inform them of the rules and regulations governing activities on the site as set out in the Code of	**Medium +**

			Conduct. 5. On completion of the construction phase all construction workers must be transported back to their place of origin within two days of their contract ending. The costs of transportation must be borne by the contractor. 6. Ensure that a minimum of 80% of the low-skilled workers are sourced from the local area. This should be included in the tender documents. Construction workers should be able to provide proof of having lived in the area for five years or longer.	
	Indirect impacts: • The presence of construction workers on the site can pose a potential safety risk to local communities and may also result in increased theft in the area. The activities of construction workers may also result in damage to neighbouring infrastructure. • Workers families livelihood will positively improve.	**Medium**	As detailed above	**Low**
	Cumulative impacts: Economic activity increases thus resulting in economic growth.	**Medium-**	As detailed above	**Medium+**
10.Impacts on traffic and local roads :	***Direct impacts:***	**Medium**	**Construction phase:**	**Low**

	Potential traffic congestion due to slow construction vehicle movements.		1. Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00). 2. It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system. 3. Speed restriction of 20km/h must be implemented for all construction vehicles. 4. Implement dust suppression measures (wetting or application of soil binding compound) in all areas that will be affected by construction 5. activities and where dust will be 6. generated	
	Indirect impacts: Surrounding residents being delayed by movement of construction vehicles.	**Low**	As detailed above	**Low+**
	Cumulative impacts Traffic congestion	**Low**		**Low+**
11. Health and Safety impacts	***Direct impacts:*** Impacts/injuries to residents and construction workers entering the site unnoticed.	**Medium**	1. The construction site must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area. 2. Safety clothes and equipment must be worn at all times. 3. No fires are allowed at or around the construction site. The contractor must provide gas fired stoves and heaters to the workers.	**Low**

	Indirect impacts: None **Indirect impacts:** None		As indicated above As indicated above	
12. Positive Impact on socio-economics:	***Direct impacts:*** The construction phase will provide direct temporary employment for locals, and indirect employment through demand for construction materials, and support services, as well as empowerment and skills transfer opportunities. ***Indirect impact:*** • Increased reliability of energy services during operation phase. • Increased economic activity of surrounding area. ***Cumulative impact:*** increased economic activity and growth	**Low positive** **Low positive** **Low positive**	Proposed enhancement: 1. A local employment policy to be adopted by the developer to maximise the project opportunities being made available to the local community. **2.** Local suppliers and contractors must be used during this phase. As indicated above	**Medium positive** **Low positive** **Low positive**

13.Impacts on unknown cultural and heritage resources	***Direct impacts:*** No impacts are expected on any cultural-historical aspects during the consturtcion of the proposed development as no such features occur on site. It must also be noted that sometimes such features (such as graves) occur beneath ground and could accidentally be exhumed during earthworks. ***Indirect impact:*** None ***Cumulative impact:*** None	**Low** **None** **None**	1. Should any archaeological material or human remains be accidentally unearthed during the course of construction, the construction team should be informed 2. Construction personnel must be alert and inform local Council should they come across any features of heritage value and must cease construction activities immediately 3. No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist. --- ---	**Insignificant** None None
Operational phase impacts: Impacts during the operational phase are expected to occur during maintenance and repairs of the Substation. The following impacts are anticipated:				
Potential impacts:	**Description of Impact**	**Significance rating of impacts:**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**
1. Noise and dust pollution	**Direct impact:** Noise and dust may occur during maintenance of the substation **Indirect impact:** None	**Very Low** None	*1.* Dust suppression and wet spraying should be implemented *2.* Limit maintenance hours to daytime and weekday *3.* Ensure that noise levels are to an acceptable limit. ---	**Low** **None**

	Cumulative impact: None	None	---	**None**
2. Operation of substation	***Direct impact:*** The addition of further electrical infrastructure to the landscape will reduce its aesthetic value **<u>Indirect Impact</u>** None **<u>Cumulative impact</u>** The constructionof the substation will add more to the visual clutter of electrical infrastructure however, the overall area is a mining industrial area, these impacts are negligible.	**Low** **None** **Low**	- None required	
CONSTRUCTION PHASE - Westgate-Ntshona and Westgate-Rand Centre ((Assessment of impacts associated with the overhead power line option (technical Alternative 1) - Please also refer to the draft EMPr, Specialist assessment and Eskom's minimum standards for vegetation management and erosion control reports for details on other applicable mitigation measures				
Potential impacts:	**Description**	**Significance rating of impacts: (without mitigation)**	**Proposed mitigation: Construction and operation phase**	**Significance rating of impacts after mitigation:**
1. Impacts on flora	***Direct impacts:*** The construction of both the Westgate-Ntshona and Westgate-Rand Centre line will inevitably	**Medium**	1. The construction of "new" access roads should be limited, and existing roads should be used during the construction phase. 2. If any floral of conservation concern on site, Eskom Environmental Manager must be contacted	**Low**

	require the removal/clearing of the surrounding vegetation. The Preferred power line construction will impact largely on transformed and secondary vegetation that were found to be of low conservation value (sensitivity).		immediately and the Gauteng Department of Agriculture and Rural Development should be consulted to either replant the species or relocate them to suitable habitat. 3. The Declining *Hypoxis hemerocallidea* should not be removed by the construction or edge effects as it is currently outside of the proposed footprint of the Westgate-Grand Centre powerline. 4. Within the remnant grassland, grassland can be removed as sods and re-used for rehabilitation of the construction footprint. 5. Any other individuals of this species, or any other bulbous species unearthed by construction, should be replanted as part of rehabilitation of the disturbed soils. An ecologist should be consulted as to the species identification. 6. Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area. 7. Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover.	**Very Low**
	Indirect Impacts: • Soils will be exposed to erosion especially around the base of the pylon structures. • Increased storm water runoff. • Loss of insect and other fauna habitat. • Colonisation of disturbed	**Low**	As detailed above	**Negligable**

	areas by alien and invasive species. ***Cumulative impacts:*** • The clearance or loss of flora lessens the contribution to the ecosystem function.	 **Very Low**	 As detailed above	
2. Impacts on fauna	***Direct impact***: No evidence that any fauna species expected on site will be negatively affected by the proposed development. The developments are expected to displace individual animals rather than populations. Irreplaceable loss of species will not occur. ***Indirect impacts:*** None **Cumulative impacts:** None	**Low** **None**	1. No killing of fauna will be allowed on site 2. Areas where a high risk of avifaunal collision is predicted, bird flight diverters are to be applied to the earth wires. 3. Regular checks below lines for signs of bird collisions and identification of sectors requiring visibility markers. None None	**Low** **None** **None**
3. Increased soil erosion:	***Direct impacts:*** Erosion of the soil surface due to surface vegetation being removed, causing exposed soil conditions where rainfall and high winds can	**Medium**	Construction phase: 1. If at all possible, construction activities should preferably take place during the dry winter months. 2. Stockpiles (if applicable) must be covered with suitable material during windy conditions.	**Low**

	cause mechanical erosion.		3. Clearance of vegetation for access road should be minimized and delayed to minimized exposed areas that might be prone to erosion during heavy rains 4. Dust suppression is necessary for stockpiles older than a month. 5. Stockpiles should not be higher than 2 m to avoid wind erosion 6. Soil stockpiles muste be bermed to avoid leacheate and erosion during rain events. 7. The energy / velocity of storm water runoff should be dissipated using metre drains at appropriate intervals. 8. Grading of the site is required after construction to ensure free flow of runoff and to prevent ponding of water 9. The topsoil must be stockpiled separately and used for rehabilitating around the substation site. Should topsoil remain, the locals should be encouraged to take the soil and place it on their vegetable patches.	
	Indirect impacts: • Sedimentation of nearby watercourses. • Increased storm water run off. • Limited vegetation growth/cover.	**Medium**	As detailed above	**Low**
	Cumulative impacts: • Potential degradation of wetlands.	**Low**	As detailed above	**Low+**

	Habitat fragmentation of aquatic fauna			
4. Noise impacts	***Direct impacts:*** • Noise created by construction vehicles and machinery during construction activities.	**Medium**	**1.** Construction activities to be limited to office hours on weekdays as far as possible**.** 2. The contractor must ensure that noise levels remain within acceptable limits 3. Prevent the generation of a disturbing or nuisance noises 4. Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors. 5. Ensuring compliance with the Noise Control Regulations 6. In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development.	**Low**
	Indirect impacts: • An additional noise	**Medium**	As detailed above	**Low**

	burden nearby West Village suburb and Eleanah complex residents. ***Cumulative impacts:*** Adding to the overall noise level of the study area.	**Low**	As detailed above	**Low+**
5.Impacts on ground water:	***Direct impacts:*** Hydrocarbon leakages from plant vehicles and poor management of sources of hydrocarbon leaking to the ground.	**Medium**	1. Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants. 2. All cement mixing must occur on impervious surfaces and within controlled bermed areas. 3. Oil spillages must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site. 4. Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the place of construction. 5. No materials may be discharged to watercourses and resources from the construction camps. 6. All hydrocarbons must be stored in a proper bunded facility.	**Low**
	Indirect impacts: • Leakages leading to pollute underground water resources. • Contaminated soils	**Medium**	As detailed above	**Low**

	washing away to drainage lines and watercourses.			
	Cumulative impacts: • Degraded groundwater resources. • Pollution in nearby watercourses.	**Medium**	As detailed above	**Low**
6.Impacts of storm water:	***Direct impacts:*** Flooding and ponding of low level areas.	**Medium**	1. No stockpiles or construction materials may be stored or placed within any drainage lines that may be in close proximity of storm water drains. 2. No stockpiles or construction materials may be stored or placed in close proximity to storm water drains. 3. The storm water system especially discharge points must be inspected and damaged areas must be repaired if required. 4. Limitation of land disturbance and grading. 5. Maintenance of vegetated buffers and natural vegetation.	**Low**
	Indirect impacts: • Transporting of pollutants to watercourses and sensitive areas. • Sediment runoff into watercourses and catchments.	**Medium**		**Low**
	Cumultative impacts: Degrading of the water quality of rivers and water bodies.	**Medium**	As detailed above	**Low**

7.Impact on dust and air quality:	***Direct impacts:*** The generation of dust from movement of Construction machinery and heavy vehicles.	**Medium**	1. Continuous watering of the site should be carried out to prevent dust pollution during windy and dry conditions. 2. A continuous dust monitoring process needs to be undertaken during construction. 3. Speed restriction of 20km/h must be implemented for all construction vehicles. 4. All vehicles transporting friable materials such a sand, rubble etc must be covered by a tarpaulin or wet down. 5. Construction vehicles are to be maintained in good working order, to reduce the probability of releasing carbon based smoke.	**Low**
	Indirect impacts: Likely to generate dust which is likely to travel and be received by adjacent residents. Trucks may potentially distribute dust along internal access Roads.	**Low**		**Low+**
	Cumlative impacts: • Overall rise in dust levels around the study site. • Health issues for adjacent residents	**Low**		**Low+**
8.Impact on visual and aesthetic quality:	***Direct impacts:*** Stockpiled materials; workforce; and construction sites may cause visual impacts in the area.	**Medium**	1. Ensure that no litter, refuse, waste, rubbish, rubble, debris and builders wastes generated on the premises be placed, dumped or deposited on adjacent or surrounding properties including road verges, roads or public places and open spaces during or after the construction period. 2. All waste/litter/rubbish etc must be disposed of at an approved dumping site as approved by the Council.	**Low**

			3. Supply sufficient garbage bins throughout the site and empty regularly. 4. Ensure good housekeeping is implemented at all times. 5. Keep the property neat and litter free at all times and maintain the landscaped areas. 6. Indigenous vegetation should be used to create habitats that attract the natural fauna in the area as far as possible 7. The Construction camp must be contained to prevent any visual intrusion and be kept in a clean and orderly state at all times. 8. Landscaping should be maintained.	
	Indirect impacts: None (the study area is already visually impacted by the mine dumps and slimes dams) ***Cumulative impacts:*** Undesired visual aesthetics	**Low-**	---	**---** **Low+**
9. Impacts on the social environment	***Direct impacts:*** Local labour can benefit from construction with employment opportunities.	**Low+**	1. All adjacent landowners must be informed of the construction processes prior to commencement of construction activities. 2. Notification must include possible timeframes for stoppages. 3. Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners. 4. Develop a Code of Conduct to cover the activities of the construction workers housed on the site. Ensure that all workers are informed at the outset of the	**Medium +**

			construction phase of the conditions contained on the Code of Conduct. Construction workers should attend a brief session before they commence activities. The aim of the briefing session is to inform them of the rules and regulations governing activities on the site as set out in the Code of Conduct. 5. On completion of the construction phase all construction workers must be transported back to their place of origin within two days of their contract ending. The costs of transportation must be borne by the contractor. 6. Ensure that a minimum of 80% of the low-skilled workers are sourced from the local area. This should be included in the tender documents. Construction workers should be able to provide proof of having lived in the area for five years or longer.	
	Indirect impacts: • The presence of construction workers on the site can pose a potential safety risk to local communities and may also result in increased theft in the area. The activities of construction workers may also result in damage to neighbouring infrastructure. • Workers families' livelihood will positively improve.	**Medium**	As detailed above	**Low**

	Cumulative impacts: Economic activity increases thus resulting in economic growth.		As detailed above	
10.Impacts on traffic and local roads :	***Direct impacts:*** Potential traffic congestion due to slow construction vehicle movements.	**Medium**	**Construction phase:** 1. Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00). 2. It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system. 3. Speed restriction of 20km/h must be implemented for all construction vehicles.	**Low**
	Indirect impacts: Surrounding residents being delayed by movement of construction vehicles.	**Low**	As detailed above	**Low+**
	Cumulative impacts Traffic congestion	**Low**		**Low+**
11. Health and Safety impacts	Impacts/injuries to residents and construction workers entering the site unnoticed	**Medium**	1. The construction site must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area.	**Low**

			2. Safety clothes and equipment must be worn at all times. 3. No fires are allowed at or around the construction site. The contractor must provide gas fired stoves and heaters to the workers 4. The workforce must adhere to the prevailing safety rules applicable to the site.	
	Indirect impacts: None		As indicated above	
	Indirect impacts: None		As indicated above	
12. Positive Impact on socio-economics:	***Direct impacts:*** The construction phase will provide direct temporary employment for locals, and indirect employment through demand for construction materials, and support services, as well as empowerment and skills transfer opportunities.	**Low positive**	**Proposed enhancement:** 1. A local employment policy to be adopted by the developer to maximise the project opportunities being made available to the local community. **2.** Local suppliers and contractors must be used during this phase.	**Medium positive**
	Indirect impact: • Increased reliability of energy services during operation phase. • Increased economic activity of surrounding area.	**Low positive**	As indicated above	**Low positive**

	Cumulative impact: increased economic activity and growth	**Low positive**		**Low positive**
13.Impacts on unknown cultural and heritage resources	***Direct impacts:*** No impacts are expected on any cultural-historical aspects during the consturtcion of the proposed development as no such features occur on site. It must also be noted that sometimes such features (such as graves) may occur beneath ground and could accidentally be exhumed during earthworks.	**Low**	1. Should any archaeological material or human remains be accidentally unearthed during the course of construction, the construction team should be informed 2. Construction personnel must be alert and inform local Council should they come across any features of heritage value and must cease construction activities immediately 3. No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist.	**Insignificant**
	Indirect impact: None	**None**	---	None
	Cumulative impact: None	**None**	---	None

Assessment of impacts associated with the overhead power line option (technical Alternative 1)

Operational phase impacts: Impacts during the operational phase are expected to occur during maintenance and repairs of the power line. The following impacts are anticipated:

Potential impacts:	**Description of Impact**	**Significance rating of impacts before mitigation:**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**

1. Noise and dust pollution	**Direct impact:** Noise and dust may occur during maintenance of the substation **Indirect impact:** None **Cumulative impact:** None	**Very Low** None None	*1.* Dust suppression and wet spraying should be implemented *2.* Limit maintenance hours to daytime and weekday *3.* Ensure that noise levels are to an acceptable limit. --- ---	**Low** **None** **None**
2. Operation of power line	***Direct impact:*** The addition of further electrical infrastructure to the landscape will reduce its aesthetic value. **<u>Indirect Impact</u>** None **<u>Cumulative impact</u>** The construction of the power line will add less to the visual clutter of electrical infrastructure but because of the existing mining visual character, and other commercial developments occurring in the vicinity, the expansion of the cumulative impacts from the construction of the power line are considered insignificant.	**Low** **None** **Low**	- None required -	**Low**

CONSTRUCTION PHASE of Westgate-Ntshona and Westgate-Rand Centre (Underground cables)

(Assessment of impacts associated with the underground power line option (technical Alternative 2)

- Please also refer to the draft EMPr, Specialist assessment and Eskom's minimum standards for vegetation management and erosion control reports for details on other applicable mitigation measures

Potential impacts:	Description of Impact	Significance rating of impacts:	Proposed mitigation: Construction and operation phase	Significance rating of impacts after mitigation:
1. **Impacts on flora**	***Direct impacts:*** The construction of the underground cables will involve considerable vegetation clearing and grading.	**Medium**	1. The mostly transformed and disturbed vegetation the Westgate-Ntshona and Westgate-Rand Centre alignment should be utilised for all construction related activities (e.g. construction camps) and the impact area on remnant grasslands should be minimised where possible. 2. The *Hypoxis hemerocallidea and Boophone distichia (poison bulb)* species that could be potentially found must be removed and replanted to suitable areas before excavations commence. 3. A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to sensitive environs or vegetation not assessed during this assessment. 4. Prohibit construction vehicles access into natural areas beyond the demarcated boundary of the construction area. 5. Formalise access roads and where possible, make	**Low**

			use of existing roads, rather than creating new routes through naturally vegetated areas. 6. After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction. 7. After construction, the land should be rehabilitated by sowing an indigenous grass mix, containing species that naturally occur within the Soweto Highveld Grassland.	
	Indirect Impacts: • Soils will be exposed to erosion. • Loss of insect and other fauna habitat. • Negative impact on flora biodiversity during construction. • Warming of underground soils.	**Medium**	As detailed above	**Low**
	Cumulative impacts: The clearance or loss of flora lessens the contribution to the ecosystem function and biodiversity. -	**Very Low**	As detailed above	**Negligible**
2. Impacts on soil	***Direct impact:*** The excavations involved in underground cable installations will involve the removal and		1. Consult with mining engineers on optimum level for cable placements. 2. Silt curtains must be used on the edges of the excavated soil stockpiles to prevent erosion. 3. Appropriately compact the backfill subsoils to	

	displacement of soil. ***Indirect impacts***: • Soil compaction • Loss of deep soil quality • Warming and humidity of subsoils becoming dehydrated due to underground cables releasing heat. • Soil exchange ***Cumulative impacts:*** Subsoil conditions will be affected by the constant high temperatures of the underground.		avoid future surface subsidence. 4. Loosen compacted top soils on completed sections of the alignments.	
3. Impacts on fauna	***Direct impacts:*** Habitat destruction by means of vegetation/tree clearance and heavy motor vehicle usage over the study site and adjacent land will expose the soils. It is predicted that can be ameliorated. Potential bird collisions and electrocutions with power lines.	**Medium**	1. The contractor/contractors must ensure that no animals are, trapped, hunted or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance. 2. As far as possible, restrict construction activities to the development site. 3. Education of the construction staff about the value of wildlife and environmental sensitivity. 4. Restrict vegetation clearing and excavation to only that necessary for safe construction for the underground cables.	**Low**

	Indirect impact: • No redflagged species are listed to be impacted upon. • Little fauna impacts due to the study area being devoid of many mammals as result of extreme environmental transformation. • Habitat of remaining fauna will be fragmented.	**Low**	As detailed above	**Low+**
	Cumulative impact: • Short term disturbance of the localised micro ecosystem function of the area.	**None**	As detailed above	**-**
4. Increased soil erosion:	***Direct impacts:*** Erosion of the soil surface due to surface vegetation being removed, causing exposed soil conditions where rainfall and high winds can cause mechanical erosion.	**Medium**	Construction phase: 1. If at all possible, construction activities should preferably take place during the dry winter months when subsoils are less saturated. 2. Stockpiles (if applicable) must be covered with suitable material during windy conditions. 3. Clearance of vegetation for access road should be minimized and delayed to minimized exposed areas that might be prone to erosion during heavy rains 4. Dust suppression is necessary for stockpiles older than a month.	**Low**

			5. Temporary sediment fences/silt curtains below areas of earth to minimise the release of sediment to watercourses. 6. Stockpiles should not be higher than 2 m to avoid wind erosion 7. Soil stockpiles must be bermed to avoid leacheate and erosion during rain events. 8. The energy / velocity of storm water runoff should be dissipated using metre drains at appropriate intervals. 9. Grading of the site is required after construction to ensure free flow of runoff and to prevent ponding of water 10. The topsoil must be stockpiled separately and used for rehabilitating around the substation site. Should topsoil remain, the locals should be encouraged to take the soil and place it on their vegetable patches.	
	Indirect impacts: • Sedimentation of nearby watercourses. • Increased storm water run off. • Limited vegetation growth/cover.	**Medium**	As detailed above	**Low**
	Cumulative impacts: • Potential degradation of wetlands. • Habitat fragmentation of aquatic fauna	**Low**	As detailed above -	**Low+**

5. Noise impacts	***Direct impacts:*** • Noise created by construction vehicles and machinery during construction activities.	**Medium**	**1.** Construction activities to be limited to office hours on weekdays as far as possible**.** 2. The contractor must ensure that noise levels remain within acceptable limits 4. Prevent the generation of a disturbing or nuisance noises 5. Ensure acceptable noise levels at surrounding stakeholders and potentially sensitive receptors. 6. Ensuring compliance with the Noise Control Regulations 7. In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development.	**Low**
	Indirect impacts: • An additional noise burden nearby West Village suburb and Eleanah complex residents.	**Medium**	As detailed above	**Low**

	Cumulative impacts: Adding to the overall noise level of the study area.	**Low**	As detailed above -	**Low+**
6.Impacts on ground water:	***Direct impacts:*** Hydrocarbon leakages from plant vehicles and poor management of sources of hydrocarbon leaking to the ground.	**Medium**	1. Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants. 2. All cement mixing must occur on impervious surfaces and within controlled bermed areas. 3. Oil spillages must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site. 4. Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the place of construction. 5. No materials may be discharged into watercourses and water resources from the construction camps. 6. All hydrocarbons must be stored in a proper impermeable bunded facility.	**Low**
	Indirect impacts: • Leakages leading to pollution of underground water resources. • Contaminated soils washing away into drainage lines and watercourses.	**Medium**	As detailed above	**Low**

	Cumulative impacts: • Degraded groundwater resources. • Pollution in nearby watercourses.	**Medium**	As detailed above -	**Low**
7.Impacts on storm water: The accumulation of storm water.	***Direct impacts:*** Flooding and ponding of low level areas.	**Medium**	1. No stockpiles or construction materials may be stored or placed within any drainage lines that may be in close proximity of storm water drains. 2. No stockpiles or construction materials may be stored or placed in close proximity to storm water drains. 3. The storm water system especially discharge points must be inspected and damaged areas must be repaired if required.	**Low**
	Indirect impacts: • Transporing of pollutants to watercourses and sensitive areas. • Sediment runoff into watercourses and catchments. ***Cumultative impacts:*** Degrading of the water quality of rivers and water bodies.	**Medium**	As detailed above.	**Low**
8.Impact on dust and air quality:	***Direct impacts:*** Soil excavations and removal will result deterioration of ambient air quality.	**Medium**	1. Water must be sprayed when there is an obvious dust problem on all exposed surfaces to suppress emission of dust. 2. A continuous dust monitoring process needs to be undertaken during construction. 3. Speed restriction of 20km/h must be implemented for all	**Low**

			construction vehicles. 4. All vehicles transporting friable materials such a sand, rubble etc must be covered by a tarpaulin or wet down.	
	Indirect impacts: After removal of top soil and vegetation cover, soil does tend to have erosion and dispersive potential. ***Cumulative impacts:*** Overall rise in dust levels around the study site.	**Low** **Low**		**Low+** **Low+**
9.Impact on visual and aesthetic quality:	***Direct impacts:*** Stockpiled materials; workforce; and construction sites may cause visual impacts in the area.	**Medium**	1. Ensure that no litter, refuse, waste, rubbish, rubble, debris and builders wastes generated on the premises be placed, dumped or deposited on adjacent or surrounding properties including road verges, roads or public places and open spaces during or after the construction period. 2. All waste/litter/rubbish etc must be disposed of at an approved dumping site as approved by the Council. 3. Supply sufficient garbage bins throughout the site and empty regularly. 4. Ensure good housekeeping is implemented at all times. 5. Keep the property neat and litter free at all times and maintain the landscaped areas. 6. Indigenous vegetation should be used to create habitats that attract the natural fauna in the area as far as possible 7. The Construction camp must be contained to prevent any visual intrusion and be kept in a clean and orderly state at all times.	**Low**

	Indirect impacts: None ***Cumulative impacts:*** Undesired visual aesthetics	--- **Low-**	8. Landscaping should be maintained. ---	--- **Low+**
10. Impacts on the social environment	***Direct impacts:***	**Low**	1. All adjacent landowners must be informed of the construction processes prior to commencement of construction activities. 2. Notification must include possible timeframes for stoppages. 3. Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners. 4. .Develop a Code of Conduct to cover the activities of the construction workers housed on the site. Ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct. Construction workers should attend a brief session before they commence activities. The aim of the briefing session is to inform them of the rules and regulations governing activities on the site as set out in the Code of Conduct. 5. On completion of the construction phase all construction workers must be transported back to their place of origin within two days of their contract ending. The costs of transportation must be borne by the contractor. 6. Ensure that a minimum of 80% of the low-skilled workers are sourced from the local area. This	**Medium**

	Indirect impacts: • The presence of construction workers on the site can pose a potential safety risk to local communities and may also result in increased theft in the area. The activities of construction workers may also result in damage to neighbouring infrastructure. • Workers families' livelihood will positively improve. ***Cumulative impacts:*** Economic activity increases thus resulting in economic growth.	**Medium**	should be included in the tender documents. Construction workers should be able to provide proof of having lived in the area for five years or longer. As detailed above	**Low**
11.Impacts on traffic and local roads :	***Direct impacts:*** The transportation of trucks for raw materials and mobilisation and demobilisation of earth works equipment during construction may have impact on traffic flow on the R28 especially.	**Medium**	**Construction phase:** 1. Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00). 2. It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system. 3. Speed restriction of 20km/h must be	**Low**

			implemented for all construction vehicles. 4. Adequate and appropriate road signs should be erected to warn road users.	
	Indirect impacts: Surrounding residents being delayed by movement of construction vehicles.	**Low**	As detailed above	**Low+**
	Cumulative impacts Traffic congestion	**Low**		**Low+**
12. Health and Safety impacts	***Direct impacts:*** Impacts/injuries to residents and construction workers entering the site unnoticed and common injuries to workers.	**Medium**	1. The construction site must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area. 2. Drivers and workforce should wear dust masks and safety goggles 3. No fires are allowed at or around the construction site. The contractor must provide gas fired stoves and heaters to the workers. 4. The workforce must adhere to the prevailing safety rules applicable to the site. 5. Detailed geotechnical investigations MUST be conducted along the power line route in order to verify the geotechnical desk study and to provide site specific appropriate founding solutions.	**Low**
	Indirect impacts:	**None**	**---**	**---**

	Cumulative impacts:	**None**	**---**	**---**
13. Positive Impact on socio-economics:	***Direct impacts:*** The construction phase will provide direct temporary employment for locals, and indirect employment through demand for construction materials, and support services, as well as empowerment and skills transfer opportunities.	**Low positive**	**Proposed enhancement:** 1. A local employment policy to be adopted by the developer to maximise the project opportunities being made available to the local community. **2.** Local suppliers and contractors must be used during this phase.	**Medium positive**
	Indirect impact: • Increased reliability of energy services during operation phase. • Increased economic activity of surrounding area.	**Low positive**	As indicated above	**Low positive**
	Cumulative impact: increased economic activity and growth	**Low positive**		**Low positive**
14. Impacts on unknown cultural and heritage resources	***Direct impacts:*** No impacts are expected on any cultural-historical aspects during the consturtcion of the proposed	**Low**	1. Should any archaeological material or human remains be accidentally unearthed during the course of construction, the construction team should be informed 2. Construction personnel must be alert and	**Insignificant**

	development as no such features occur on site. It must also be noted that sometimes such features (such as graves) occur beneath ground and could accidentally be exhumed during earthworks. ***Indirect impact:*** None ***Cumulative impact:*** None	**None** **None**	inform local Council should they come across any features of heritage value and must cease construction activities immediately 3. No heritage feature can be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist. --- ---	None None
(Assessment of impacts associated with the underground power line option (technical Alternative 2) **Operational phase impacts:** Impacts during the operational phase are expected to occur during maintenance and repairs of the power line. The following impacts are anticipated:				
Potential impacts:	**Description of Impact**	**Significance rating of impacts before mitigation:**	**Proposed mitigation:**	**Significance rating of impacts after mitigation:**
1. Noise and dust pollution	**Direct impact:** Noise and dust may occur during maintenance of the substation **Indirect impact:** None	**Very Low** None	1. Dust suppression and wet spraying should be implemented. 2. Limit maintenance hours to daytime and weekday 3. Ensure that noise levels are to an acceptable limit. ---	

	Cumulative impact: None	None	---	
2. Operation of power line	**Direct impact:** • The addition of further electrical infrastructure to the landscape will reduce its aesthetic value. • During repairs and maintenance, whole segments between vaults may need to be excavated again. **Indirect Impact** **None** **Cumulative impact** Periodical disturbance of the ecological status of the study area.	**Low** **None** **Low**	- None required	
Decommissioning phase – Impacts associated with decommissioning phase will be similar to those described and assessed for the construction phase. However it must be noted that *the decommissioning phase will not be assessed further in this report as the closure and decommissioning require a separate EIA process which will be conducted as and when closure is required.*				

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

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.

(Ntshona and Substation Alternative 1)

Note: For the purposes of this impact statement and clarification, the proposed Ntshona and Substation Alternative 1 sites will be assessed collectively as these are located in a similar geographical environment. Impacts from the abovementioned substations are likely to be similar.

Certain elements and/or factors have been taken into account when assessing the impact of the proposed activity on the environment

Element/Factor	Observation/Comments
Vegetation impact of the proposed substation.	• Due to the transformed or disturbed state of the vegetation at the proposed Ntshona substation site and invasion by alien species, the study area was classified as being of low sensitivity. • The Substation Alternative 1 site is currently being mined (open cast).
Fauna and habitat of fauna impact of the proposed substation.	• From the perspective of mammals and herpetofauna, neither site stands out as having detrimental effects on surrounding fauna. • Both sites are ranked as having a 'Low' conservation profile, defined as "Land that has little conservation value and that could be considered for developed with little to no impact on the habitats or fauna".
Heritage and/or cultural impact of the proposed substation.	• No site, features or objects of cultural significance are known to exist in the study area, there would be no impact as a result of the proposed development.
Groundwater and sub-surface impact of the proposed substation.	• No geological faults or dykes indicated on the geological map.
Visual and/or aesthetic elements	• The visual specialist is of the opinion that the construction and operation of the substation will not cause significant visual impacts

Possible degradation and long-term effects on the environment.	• No long term effect on the environment is expected. Mitigation measures should be employed to ensure no significant degradation of the environment.
Pollution released into the environment	• The proposed activity is not expected to result in long term pollution of the environment. Mitigation measures are proposed to ensure pollution is restricted to short term localised effects
No fatal environmental flaws have been identified in relation to the construction of the proposed Ntshona substation as the location occurs within an already degraded and heavily transformed area due to historical and current mining activities and do not transverse any ecologically important areas. No objections to the development of the proposed Ntshona substation in this area is raised, provided that applicable mitigation measures are implemented as recommended by the vegetation specialist.	

Overhead power lines (Preferred)

Certain elements and/or factors have been taken into account when assessing the impact of the proposed activity on the environment

Element/Factor	**Observation/Comments**
Vegetation impact of the proposed routes.	• From a vegetation perspective, the declining *Hypoxis hemerocallidea* that may be found should not be removed by the construction or edge effects as it is currently outside of the proposed footprint of the Westgate-Grand Centre powerline. • Any other individuals of this species, or any other bulbous species unearthed by construction, should be replanted as part of rehabilitation of the disturbed soils. An ecologist should be consulted as to the species identification are not envisaged to have long term, negative impacts on vegetation. • The proposed development of the powerlines and Ntshona substation are not envisaged to have long term, negative impacts on vegetation
Fauna and habitat of fauna impact of the	• From the perspective of mammals and

proposed routes.	herpetofauna, neither route stands out as having detrimental effects on surrounding fauna. • Both routes are ranked as having a 'Low' conservation profile, defined as "Land that has little conservation value and that could be considered for developed with little to no impact on the habitats or fauna".
Heritage and/or cultural impact of the proposed routes.	• No site, features or objects of cultural significance are known to exist in the study area, there would be no impact as a result of the proposed development.
Groundwater and sub-surface impact of the proposed routes.	• No geological faults or dykes indicated on the geological map.
Visual and/or aesthetic elements	• The visual specialist is of the opinion that the construction and operation of both the power lines will not cause significant visual impacts.
Possible degradation and long-term effects on the environment.	• No long term effect on the environment is expected. Mitigation measures should be employed to ensure no significant degradation of the environment.
Pollution released into the environment	• The proposed activity is not expected to result in long term pollution of the environment. Mitigation measures are proposed to ensure pollution is restricted to short term localised effects
The construction of overhead power lines is preferred as there are lesser negative impacts related to their development as compared to the underground cable alternative. The overhead power lines will not significantly impact on the artificial wetland found in the study area as only the monopole pylon or the lattice base will be the only interaction with this wetland and prevailing vegetation and if mitigation measures recommended by the wetland and vegetation specialists are followed, then no long term impacts are predicted. Also, the overhead power lines are preferred because they will not be directly affected by the underground mining disturbances as much as the underground cables will be, as long as mining activities do not occur within 100 m of the monopole structures as indicated by the Tower Proximity investigation conducted.	

(Underground cables)

Element/Factor	Observation/Comments
Vegetation impact of the proposed route.	• Within the remnant grassland, grassland can be removed as sods and re-used for rehabilitation of the construction footprint.

	• The vegetation specialists recommend that any other individuals of this species, or any other bulbous species unearthed by construction, should be replanted as part of rehabilitation of the disturbed soils. An ecologist should be consulted as to the species identification.
Fauna and habitat of fauna impact of the proposed route.	• From the perspective of mammals and herpetofauna, neither route stands out as having detrimental effects on surrounding fauna. • Both underground routes are ranked as having a 'Low' conservation profile, defined as "Land that has little conservation value and that could be considered for developed with little to no impact on the habitats or fauna".
Heritage and/or cultural impact of the proposed route.	• No site, features or objects of cultural significance are known to exist in the study area, there would be no impact as a result of the proposed development.
Groundwater and sub-surface impact of the proposed route.	• No geological faults or dykes indicated on the geological map.
Visual and/or aesthetic elements	• No visual impacts are anticipated during operation.
Possible degradation and long-term effects on the environment.	• Mitigation measures and trench rehabilitation should be employed to ensure no significant degradation of the environment.
Pollution released into the environment	• The proposed activity is not expected to result in long term pollution of the environment. Mitigation measures are proposed to ensure pollution is restricted to short term localised effects

No-go alternative (compulsory)

The No-go option implies that the Project does not proceed, and will thus comprise of Eskom not going ahead with the construction of the substation and powerline. Ideally, this would be the preferred alternative as the status quo of the environment remains unchanged, however due to the growing demand for energy and mining activities that will require electricity in the area, this alternative is not feasible. Should Eskom rely on the existing network to supply future demand it is highly likely that present supply will be compromised due to the increased load on the network.

- Direct impacts

  - Eskom will not be able to supply sufficient electricity to customers and new developments.
  - Limited development and employment opportunities will be created (i.e. no construction

phase).

- Indirect Impacts
  - Local suppliers and contractors will not benefit from the business opportunities relating to construction
  - No new business and industrial ventures due to lack of electricity
  - Power outages and uncertain power supply may be experienced in the study area

No increase in the economic activity in the area and as a result socio economics will be depressed

SUMMARY COMPARISON OF UNDERGROUND TECHNCIAL OPTION 2 AND OVERHEAD TECHINICAL OPTION 1.

A technical alternative exists with respect to powerline components, which could be built either below ground or above ground. The option of placing the two proposed 132kV power lines below is preferred from an avifauna perspective as it will mitigate bird electrocution and the collision although no red data species were recorded in the area. However the construction of the two overhead power lines will reduce the impact on ecology and fauna habitats due to the smaller footprint and the lower impacts in this regard during operation and maintenance. Impacts on avifauna with the implementation of the mitigation measures can be effectively mitigated as recommended in the specialist studies and tables above, as well as the project EMPr. It must also be noted that no red data species of conservation concern were recorded in the study area.

Laying an underground cable will affect the rights of the owners and occupants of the land on which the power line is built and used, to a degree similar to the erection of an overhead line. On principle, easements --rights of use-- are recorded in the land register. The owners receive appropriate compensation. This ensures that the transmission system operator can build the power line and subsequently access it in order to carry out the necessary maintenance and repair works. In the case of underground cable, continual and direct access for maintenance and repairs is only guaranteed when the area above the cable remains free. As a consequence, use of the underground cable route for agricultural purposes is not possible or is subject to restrictions.

Health and Safety:
One of the main dangers which may arise when digging is that of possible injury from underground power cables. A potential danger this present is coming into contact with the existing underground Sasol gas pipelines if proper surveying is not conducted. Also, underground seismic activities due to mining operations add to the potential danger elements as underground vibrations may affect the cables. Therefore the overhead powerline (technical alternative 1 (option 1) is nominated as the preferred alternative.

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 should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

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

This Basic Assessment Report has provided a comprehensive assessment of the potential environmental impacts associated with the proposed project. These impacts have been identified by the EIA team (including specialists) and I&APs. The key findings of the BA are discussed in this report. In general, the proposed development will have an impact of low significance provided that there is effective application of the mitigation measures proposed in this BAR and the EMPr. The majority of these impacts are easily mitigated and can be reduced to lower significance through appropriate design and mitigation measures. No unacceptable impacts of unacceptably high significance are foreseen once proper mitigation measures have been implemented. The findings of the specialists that were involved are briefly presented as follows:

- All the specialists (Flora, fauna, wetland, visual, geotechnical and heritage) have concluded that both the construction and operation of the proposed power lines (Westgate-Ntshona and Westgate-Rand Centre) and substation will not have any fatal environmental laws. The vegetation specialist has concluded that the project will largely impact on transformed or disturbed vegetation that were found to be of low conservation value or sensitivity. The conservation of the remnant grasslands found will not significantly contribute to conservation of Soweto Highveld Grassland within the province due to past and current edge effects and impacts, rehabilitation. Further, the fauna specialist found that both routes are ranked as having a 'Low' conservation profile, meaning that site land has little conservation value that could be considered for development with little to no impact on the habitats or fauna. Also, it was determined that no site, features or objects of cultural significance are known to exist in the study area by the heritage specialist, and there would be no impact as a result of the proposed development. The geotechnical specialist found that no geological faults or dykes existed with this development, however recommended that detailed geotechnical investigations be conducted along the power line route as well at the two substation positions (preferred & alternative 1) in order to verify the desk study and to provide site specific appropriate founding solutions.. Visually, it was determined that no major visual impacts would arise from this development. However, potential environmental impacts should be managed to prevent cumulative impacts as set out in the mitigation measures in this Basic Assessment Report.

However, taking into consideration the findings of this Basic Assessment, there are no significant and unacceptable potential environmental impacts of both the proposed routes and the substation construction, also, no fatal flaws are foreseen in relation with this proposed development.

Therefore it is the recommendation of this Basic Assessment Report that the construction of

the Westgate-Ntshona power line and the rebuilding of the Westgate-Rand Centre overhead power lines along with the Proposed Ntshona substation be authorised with application of effective mitigation measures. It is therefore also recommended that the competent authorities authorise this development subject to the following conditions:

- Eskom must adhere to the authorised alignment servitude.
- Compliance with the mitigation measures outlined in this BA report and EMPr.
- Continued consultation and engagement with all relevant stakeholders – especially the land owner, local communities and respective municipalities during labour recruitment and procurement for services and supplies during construction phase.
- Monthly monitoring and evaluation of the construction sites for environmental compliance.
- Eskom shall ensure that adequate protection measures are taken to minimize the potential risk of theft during the construction and operational phase.
- Applicant should provide contractual agreement with the water service provider to the Department of Water Affairs and Sanitation.
- Compliance with all legal requirements in relation to environmental management and conditions of the authorisation issued 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.

_____

NAME OF EAP

_____ _____

SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps
- A1: Westgate-Ntshona route
- A2: Westgate-RandCentre route
- A3: Sensitivity Map

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)
- D1: Geotechnical Report
- D2: Flora & Fauna Reports
- D3: Heritage Specialist Report
- D4: Wetland Specialist Report
- D5: Visual Specialist Report

Appendix E: Public Participation
- E1: Proof of site Notice & Adverts
- E2: Written Notice to I&APs
- E3: Comments and Response report
- E4: Proof of Notification
- E5: Interested and Affected Party Database
- E6: Minutes of Public Meeting / Agenda and Attendance Register

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)
- G1: Eskom Guideline for Erosion Control
- G2: Eskom Land and Biodiversity Standard
- G3: Eskom standard for bush clearance

Appendix H: Details of EAP and expertise
- H1: Gesan`s Cv and affirmation
- H2: Thabang`s Cv

Appendix I: Specialist's declaration of interest and CV's