

Zitholele Consulting
Reg. No. 2000/000392/07

PO Box 6002 Halfway House 1685
South Africa
Thandanani Park, Matuka Close
Halfway Gardens, Midrand
Tel + (27) 11 207 2060
Fax + (27) 86 674 6121
E-mail : mail@zitholele.co.za



FINAL BASIC ASSESSMENT REPORT

PROPOSED PONGOLA-CANDOVER 132kv POWER LINE AND ASSOCIATED MODIFICATIONS TO THE EXISTING PONGOLA SUBSTATION AND CANDOVER SWITCHING STATION

Report No : 12722-Basic Assessment Report 1

Submitted to:

Department of Environmental Affairs
315 cnr Pretorius and Lilian Ngoyi Street
Fedsure Forum Building
North Tower 2nd Floor
Pretoria
0001

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environmental affairs

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Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:

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Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. 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 on the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

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

✓ YES	NO
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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

Background and Context

Eskom Distribution’s - KwaZulu-Natal Operating Unit, is presently upgrading the electricity infrastructure in the Makhathini Flats area in northern KwaZulu-Natal.

With the construction of three new 132kV substations for the supply of the greater Makhathini area viz. Ndumo, Gezisa (at Manguzi) and Mbazwana substations, the existing Pongola-Candover 132kV power line will be overloaded by 2013. Should the existing Pongola-Candover 132kV power line be out of service, for whatever reason, then Makhathini, Gezisa, Ndumo and Nondabuya substation loads will be shed resulting in an inevitable loss of supply on the greater Makhathini area and an unacceptable service to customers. As a solution Eskom proposes to construct infrastructure to strengthen and upgrade the network in the Pongola, Mkuze and Golela areas. The objective of the proposed installation of a new, second 132 kV overhead distribution line between the Pongola Substation and Candover Switching Station is to increase the reserve capacity in the existing lines, while providing spare capacity for the future electrical need of the expanding local economy in both the uPhongola and Jozini Local Municipalities and the greater Makhatini area.

In order to accommodate this proposed second 132kV power line, modifications to the existing Pongola 132/22kV substation and the existing Candover switching station will have to be undertaken.

In addition, a proposed 132kV power line and substation will be required to tee-off the existing Mkuze-Pongola 132kV power line to feed a proposed Golela substation located on the road leading to the Golela border post with Swaziland. This will accommodate future electrical loads for proposed developments at the border post.

Construction and operation of the above 132kV power lines and Golela substation are subject to Basic Assessments (BA) in terms of Section 14 of the National Environmental Management Act, No 107 of 1998 (NEMA), as amended. In fulfilment of this requirements, Eskom has appointed Zitholele Consulting to act as the independent environmental assessment practitioner (EAP) and to undertake the BA process.

Project Description

This proposal, as part of the electrification of the greater Makhathini area, includes the following principal activities for which authorisation is sought.

- **Activity 1:** Construction of a second 132kV power line with a 36 m wide servitude traversing from the existing Pongola substation to the existing Candover switching station. The estimated length of the power line will be 50km.
- **Activity 2:** Modification of the existing Pongola Substation and Candover Switching Station to accommodate the second Pongola-Candover 132kV power line;
- **Activity 3:** Location of a new 132/22kV substation on the secondary road to the Golela border post;
- **Activity 4:** Construction of two 132 kV power lines either as single or double circuit configuration to supply the proposed Golela Substation.

Although the BA for all the above activities has been conducted simultaneously due to the overlapping study areas, the results of the BA will be reported in two separate Basic Assessment Reports (**BAR**) covering the above activities as follows:

- **Basic Assessment Report 1** (this report):
In this BAR Activities 1 and 2 – Proposed new Pongola- Candover second 132kV Power line and associated modifications to the existing Pongola substation and Candover switching station will be dealt with.

Study Area

The study area where the proposed activity is to take place is located to the west of the N2 National Road and between Mkuze and Pongola Towns in Northern KwaZulu-Natal. The study area falls within the uPhongolo Local Municipality area which forms part of the Zululand District Municipality. The study area is currently dominated by game farms, Nature Reserves and some agriculture. The proposed power line will run from the existing Candover switching station, located approximately 10 km north of Mkuze town, in a westerly direction to the existing Pongola substation, located 6 km south of Pongola town. (**See Locality Plan in Appendix A.1**).

Substation and Switching Station

Both the existing Pongola Substation and the Candover Switching Station will need to be renovated and upgraded (not expanded) to accommodate the extra receiving bays for the proposed new 132 kV power line. This also includes the construction of a 12 m high repeater mast at both the locations for the operation of the switching station and substation. This will all take place within the existing Eskom-owned substation and switching station properties and therefore do not require authorisation.

132 kV Power line

The proposed 132 kV power line will consist three conductors covered by a thinner shield wire capable of distributing 132kV, connected by a series of pylons.

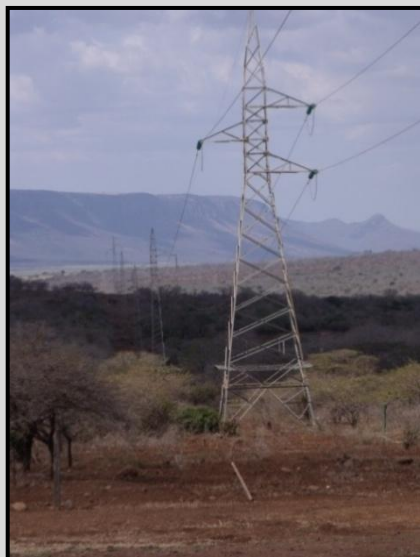


Figure1: Views of the existing power line.

Servitude Clearance Requirements

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

Table 1: Electrical Clearance Specifications (Eskom)

Clearances	Minimum Clearance Distance (m)
Ground clearance	6.3
Building structures not part of power line	3.8
Above roads and in townships, proclaimed roads	7.5
Telecommunication lines	2.0

Table 2: Minimum Clearance Chart for Power lines from Roads (132 kV – KZN Region)

National Roads: any part of structure greater than 60m , from road reserve boundary
KZN Main Roads: (any part of structure) greater than 35m from centre line of road or 15m from road fence
KZN District roads: (any part of structure) 20m from central line of the road

Access

Access is required during both the construction and operation/maintenance phases of the power line' life cycle. Where possible, existing access roads and tracks will be used to gain access to construction sites and the servitude. Where no access roads/tracks exist, the access points and roads will be negotiated with the relevant landowner, and are to be established during the construction phase. Access roads will enable the transportation of construction material as well as construction teams to the site and facilitate maintenance activities once the power line has been constructed.

Foundations

The type of terrain encountered, as well as the underlying geotechnical conditions as well as the pylon type required determines the choice of foundation. The actual size and type of foundation to be installed will depend on the soil bearing capacity (actual sub-soil conditions). Foundations will be mechanically excavated where access to the site is readily available. All foundations are back-filled, stabilised through compaction, and capped with concrete at ground level.

Towers

The pylons (towers) can be located approximately 300m to 400m apart on level ground, but the span length can be increased up to 1300m when crossing valleys and depending on the terrain.

Two steel lattice tower structures are proposed to be used:

- (273A, 273E) Guyed Suspension Tower;
- Self-supporting Tower (255C).

The pylon footprints for these towers range from between 0.36m² and 2.35m² depending on the structure that is used. The pylon also differs in structure to accommodate increased strain when a bend is made in the power line.

The pylons will be approximately 18m high (which varies depending on terrain) and require a 36m wide servitude i.e. 18m either side of the centre line of the power line.

Drawings and photographs of the proposed pylons to be used are presented in **Appendix A2**.

Approval is sought for a corridor 500m wide for the power line to allow for deviations within the approved corridor once a final route has been negotiated with landowners.

Power line Design, Construction and Operation Activities

Design Phase Activities

- environmental survey of study area
- selection of alternative power line corridors and substation sites

- Determination of technically feasible alternatives:
- EIA input into route selection and obtaining government authorisation
- Negotiation of final line route and servitude with affected landowners
- Route survey and **Corridor walk-down**: To ensure that all site specific sensitivities are avoided. During this process the exact co-ordinates of the proposed towers will be established.
- Final design of line and placement of towers

Construction Phase Activities

The construction phase for the proposed project will include the following activities post-authorisation:

- **Construction Camps**: Construction camps will be sited in areas where least disturbance to potentially sensitive environments will be caused.
- **Batching Plants**: If Readymix concrete is not available, small mobile batching plants will have to be established in the area close to the power line.
- **Access**: Access will have to be created to allow for large construction vehicles to get onto the proposed servitude.
- **Vegetation clearance**: A 36m (18m on either side of the power line) servitude is required for the proposed 132kV power line. Trees and shrubs will be cleared where required along the entire length of the servitude (the vegetation will also be maintained by Eskom in the operational phase of the project).
- **Surveying, pegging and soil nominations**: During construction the route will be surveyed, pegged and the soil nominations undertaken for each of the potential pylon foundations.
- **Pylon footings**: Foundations will be laid for the footings of the pylons. . The first step is the excavation of the pylon foundations, the reinforcing thereof and finally the concreting of the foundations. The equipment required to excavate the foundations can be manual labour, a TLB or in the case of hard rock – a drill rig will be required. The concrete will have to be transported via concrete trucks to the required locations.
- **Steelwork structures**: The towers will be erected in piece-meal; that is to say in segments. After the foundations and footings have been installed the construction team will transport the various steel parts of the towers to the site and start erection of the pylons. This process again requires a lot of manual labour and often mobile cranes are used to assist with the erection of the towers.
- **Stringing**: Once the towers have been erected, cables will be strung between the towers. Once stringing and tensioning is complete the line is considered constructed, where after it will be tested prior to being commissioned.
- **Rehabilitation of disturbed areas and protection of erosion sensitive areas**
- **Testing and commissioning**

The construction phase for the proposed project will take, at most, 60 months to complete (from the time Environmental Authorisation has been received).

Operational Phase Activities

During the operational and maintenance phase of the project, Eskom requires access to the servitude for maintenance activities which may include repairs and replacement of various hardware on the towers and the conductor and in very rare cases, repairs to the foundations. .

Decommissioning Phase Activities

- The physical removal of the power line infrastructure would entail the reversal of the construction process.
- A rehabilitation programme would need to be agreed upon with the landowners (if applicable) before being implemented.
- Materials generated by the decommissioning process will be disposed of according to the Waste Hierarchy i.e. wherever feasible, materials will be reused, then recycled and lastly disposed of. Materials

will be disposed of in a suitable manner, in a suitably licensed facility.

All of the aforementioned decommissioning activities would be subject to a separate Environmental Authorisation process at the appropriate time.

Expansion of the existing Pongola Substation and Candover Switching Station

This expansion of these two facilities will involve expanding the foundation of the substation and the erection of additional bays to take in the new line:

- Expansion of fence line
- Construction of terrace and foundations
- Assembly and erection of new bays
- Rehabilitation of disturbed areas
- Testing and commissioning

Overview of Environmental Features of the Study Area

The topography of the study area is predominantly rolling hills, but relatively high escarpments traverse the study area from north to south. Game farms and cattle farms, game reserves and some sugar cane are the predominant land uses in the study area. The vegetation consists of Zululand Lowveld and Northern Zululand Bushveld and is very dense in the central and south eastern portions of the study area. The mountainous terrain and dense vegetation generally coincide and will impose access constraints and difficulties. According to the local municipalities IDP for the uPhongolo Area some important conservation areas require careful management in the unfolding development pattern. These include; Pongolapoort dam and nature reserve, Bivane Dam, Ithala Nature reserve; the area surrounding Magudu and the Mkuze river as well as the area between the R66 and the N2 Roads.

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

Listed activity as described in GN R.544, 545 and 546	Description of project activity
GN R.544, 18 June 2010 Item 10(i) The construction 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 kV.	<ul style="list-style-type: none"> • Construction of a 132kV transmission line between the existing Pongola substation and Candover switching station • Upgrades to the Pongola Sub-station and Candover Switching station
GN R.544, 18 June 2010 Item 11(xi) The construction of infrastructure or structures within a watercourse or within 32m of a watercourse.	The power line structures may have to be placed within 32 m of a water course/wetland, where unavoidable.
GN R.544, 18 June 2010 Item 22(ii) The construction of access road outside urban areas where no reserve exists and where the road is wider than 8 m.	Temporary access roads for the construction of the power lines and associated infrastructure may be required. Such roads may exceed the 8m threshold to make allowance for heavy vehicles used in construction.

<p>GN R.544, 18 June 2010 Item 26</p> <p>Any process or activity identified in terms of Section 53(1) of NEM: Biodiversity Act, 2004</p>	<p>The Pongola / Mkuze area is known for its environmental sensitivity. This activity will only apply if such sensitive areas may be affected.</p>
<p>GN R.546, 18 June 2010 Item 3(a)</p>	<p>Towers for Eskom telecommunication may have to be constructed at the substation sites. Towers will likely be in excess of 15m depending on the location of the substation and surrounding terrain.</p>
<p>GN R.546, 18 June 2010 Item 4(a)</p>	<p>Eskom may have to construct access roads 6m or more wide for the construction and maintenance of the proposed power line and substation.</p>
<p>GN R546 18 June 2010 Item 13 (a) (c) ii The clearance of an area of 1 hectare or more of vegetation where 75 % or more of the vegetative cover constitutes indigenous vegetation.</p>	<p>Clearing vegetation along servitude will likely occur and will exceed 1 ha in totality.</p>

2 FEASIBLE AND REASONABLE ALTERNATIVES

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

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

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

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

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

Please Note

The alternatives are named as follows:

- Alternative A1 – Northern Corridor
- Alternative A2 – Central Corridor
- Alternative A3 – Southern Corridor

Identification of Reasonable Corridor Alternatives

The three alternatives specified above were identified during site and routing investigations undertaken in the greater study area by Eskom environmental representatives, the environmental assessment practitioner with input from ecological, visual, surface water, heritage and avifauna specialists.

a) Corridor alternatives

In the case of linear activities:

Alternative:

Alternative A1 – Northern (preferred)

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

Latitude (S):

Longitude (E):

27° 26' 53.437" S	31° 38' 20.980" E
27° 24' 44.040" S	31° 50' 30.528" E
27° 32' 57.097" S	31° 59' 14.825" E

Alternative A2 (Central)

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

27° 26' 53.437" S	31° 38' 20.980" E
27° 31' 12.640" S	31° 49' 33.486" E
27° 32' 57.097" S	31° 59' 14.825" E

Alternative A3 (Southern)

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

27° 26' 53.437" S	31° 38' 20.980" E
27° 32' 1.670" S	31° 50' 1.610" E
27° 32' 57.097" S	31° 59' 14.825" E

Refer to **Appendix A.4** for the co-ordinates taken every 250 m for each linear alternative.

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

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

b) Lay-out alternatives

“Layout alternatives” in the context of this application refers to the spatial configuration or alignment of the proposed power lines corridors. All three potential route alignments are shown on the layout map in **Appendix A3**.

Alternative A1 (preferred): Northern Corridor

Description	Lat (DDMMSS)	Long (DDMMSS)
An existing vacant 132 kV registered power line servitude falls within this corridor and runs parallel to the existing 132kV power line on its western and southern side. This corridor intersects settled land, game farms and agricultural land.		

Alternative A2: Central Corridor

Description	Lat (DDMMSS)	Long (DDMMSS)
This corridor traverses from the existing Candover switching station in an east to west direction. It intersects with the R69 and follows a north westerly direction to the Pongola Substation. This corridor traverses game farms/reserves in the southern and central portions of the corridor, grazed areas, informal settlement and agricultural land.		

Alternative A3: Southern Corridor

Description	Lat (DDMMSS)	Long (DDMMSS)
This corridor traverses in an east to west direction. It intersects with the R69 which is a rural road which divides the study area. The corridor then intersects the R66 before running parallel to it in a northerly direction to the Pongola substation. The corridor intersects mainly game farms/reserves in portions to the north as well as in the southern parts of the study area. Informal/rural settlement occurs centrally along this route.		

c) Technology alternatives

Alternative 1 (preferred alternative) – Single Circuit Overhead Power line
<p>The use of single circuit overhead power lines to distribute electricity is considered the most appropriate technology and has been designed over many years for the existing environmental conditions and terrain as specified by Eskom Specifications and best international practice. Based on all current technologies available, single circuit overhead power lines are considered the most environmentally practicable technology available for the distribution of power. This option is considered appropriate for the following reasons:</p> <ul style="list-style-type: none"> • More cost effective installation costs • Less environmental damage during installation • More effective and cheaper maintenance costs over the lifetime of the power line
Alternative 2 – Double- and Multi-circuit Overhead Power line
<p>Where sensitive environmental features are identified, and there is sufficient justification, Eskom will consider the use of double circuit (placing 2 power lines on either side of the same tower structure) or multi-circuit (placing a 132kV line and a 22kV power line on the same tower structure) to minimize impacts. However, the use of double- or multi-circuiting has a number of technical disadvantages:</p> <ul style="list-style-type: none"> • Faults or problems on one power line may mean that the other power line is also disabled during maintenance, and this will affect the quality of supply to an area. • Installation of the multi-circuit or double-circuit power lines requires dismantling the existing power line, and in cases where the existing affected power line is a radial feed, the end capacity may be disrupted. • Larger and taller towers as well as more towers are required for double- and multi-circuit power lines.
Alternative 3 – Underground Cabling
<p>Underground cabling of high voltage power lines over long distances is not considered a feasible or environmentally practicable alternative for the following reasons:</p> <ul style="list-style-type: none"> • Underground cabling will incur significantly higher installation and maintenance costs • It is more difficult and takes longer to isolate and repair faults on underground cables. • There is increased potential for faulting at the transition point from underground cable to overhead power line. • Underground cables require a larger area to be disturbed during construction and maintenance operations and hence have a bigger environmental disturbance footprint. • Underground cabling requires the disturbance of a greater area when it comes to agriculture and other compatible land uses as the entire servitude becomes available for use as opposed to just the area around the towers.

d) **Other alternatives – Tower Design Alternatives**

Alternative 1 (preferred alternative) – Steel Lattice Towers
<p>The steel lattice towers provide the following advantages over the other tower types available:</p> <ul style="list-style-type: none"> • Enables multipath earthing which enhances the overall electrical performance of the power line. • Is visually less obtrusive than the mono-pole options • Is more practicable than other options i.e. more cost effective and more practical to construct and maintain. • Is safer to work on than the monopole and wood pole structures. • Is more durable than the woodpole structures <p>Photos and drawings of the lattice towers are presented in Appendix A2.</p>
Alternative 2 – Steel Monopoles
<p>The steel monopole is considered less suitable than the steel lattice towers for the following reasons:</p> <ul style="list-style-type: none"> • Is visually more intrusive than the lattice towers. • Is more expensive than the lattice towers • Requires more steel than the lattice towers • Is more difficult to erect • Is not as safe to work on as the lattice towers
Alternative 3 - Woodpoles
<p>Woodpole structures are only used in extreme circumstances where a visual impact needs to be avoided. Wood pole structures may be cheaper to produce and to construct, but they have one tenth of the lifespan of the metal counterparts and are far more susceptible to weather conditions which makes them less efficient and practicable. The woodpole structures are also more susceptible to having the cross arms burnt off by electrical faults as well as being susceptible to deformation with height.</p>

e) **No-go alternative**

The 'No Go' alternative in the context of this project implies that the power line would not be constructed. If the power line does not go ahead, the negative environmental impacts which have been identified if it does go ahead would not occur. However, if the power line is not constructed and commissioned, the region would be negatively affected by an inadequate and unreliable supply of electricity (basic service) which would inhibit future development in Northern Zululand and would jeopardise the success of the regions Integrated Development Plans and Spatial Development Frameworks, all of which identify the lack of electrical services as inhibitors to future development and quality of life. Therefore, the need for stable and reliable power supply to meet current and future demand will likely outweigh the potential negative impacts to the surrounding environment. It is thereby concluded that the „No-go“ option is not a viable or acceptable option, and should therefore be discounted.

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

3 PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

Alternative A1 (preferred) – **Northern Corridor**
 Alternative A2 – **Central Corridor**
 Alternative A3 – **Southern Corridor**

Length of the activity:

± 43 700 m
± 40 700 m
± 43 300 m

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

Alternative:

Alternative A1 (preferred) – **Northern Corridor**
 Alternative A2 – **Central Corridor**
 Alternative A3 – **Southern Corridor**

Size of the site/servitude:

(36 m wide) 1 573 200 m ²
(36 m wide) 1 465 200 m ²
(36 m wide) 1 558 800 m ²

4 SITE ACCESS

Alternative A1 – Northern Corridor

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

YES	<input checked="" type="checkbox"/> NO
4 500 m	

Alternative A2 – Central Corridor

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

YES	<input checked="" type="checkbox"/> NO
8 000 m	

Alternative A3 – Southern Corridor

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

YES	<input checked="" type="checkbox"/> NO
7 000 m	

Describe the type of access road planned:

Alternative A1 (Northern Corridor): The existing Pongola Candover 132kV power line is located within the Northern Corridor and the existing access to this power line servitude will be used to gain access to construct the proposed new 132kV power line. Thus, minimal construction of new access roads/tracks will be required. However, at some tower positions and along the servitude, it may be necessary to cut routes using a bulldozer or TLB over rough terrain to permit access for large construction vehicles.

Alternatives A2 (Central Corridor) and A3 (Southern Corridor) - - There are no pre-existing servitude tracks along these corridors and hence new access tracks will have to be created off public roads and private farm tracks for approximately 8 and 7 km respectively. Access in the form of an informal single truck-width driven track will be required along the entire length of the power line and also at various points accessing the servitude from public roads and other existing tracks. Typically for the construction of power lines, access is generally created by repetitive passes of the construction vehicles along the servitude and along the same tracks to create a rough driveable track. However, often cutting thick bush to a width of 6 – 8 m and destumping may be required. At some tower positions and along the servitude, it may be necessary to cut routes using a bulldozer or TLB over rough terrain to permit access for large construction vehicles. Dongas may need to be filled, rocks removed, trees destumped and temporary stream crossings constructed to create access.

A portion of approximately 2 km of the corridor that is common to both the central and southern corridors will have to be strung and constructed with the use of helicopters.

Refer to **Appendix A.1 for the aerial photograph depicting those sections of the proposed corridors that will require the construction of access roads through major earthworks i.e. 12722-Access Map –Rev 0-7Aug2013**

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).

See Appendix A.1 : 12722-LocalityMap-Rev1-5May2013.pdf

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.

See Appendix A.1: 12722-LocalityMap-Rev1-5May2013.pdf

7 SENSITIVITY MAP

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

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;

- areas with indigenous vegetation (even if it is degraded or infested with alien species);
and
- critical biodiversity areas.

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

See Appendix A.5 : 12722-SensitivityMap-Rev1-5May2013.pdf

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.

See Appendix B

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.

See 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?			
Alternative A1 (Preferred) – Northern Corridor	✓YES	NO	Please Explain
The Pongola Candover existing 132 kV power line passes along this route and hence the construction of a new 132 kV power line in this servitude is already permitted in terms of the various properties existing landuse rights			
Alternative A2 – Central Corridor	YES	✓NO	Please Explain
If the power line is constructed in this corridor, the power line will pass through lands that are agricultural or open space, game farms etc where no registered servitude exists and hence a servitude will have to be registered to permit the construction of the power line. The landuse will however remain unchanged.			
Alternative A3 – Northern Corridor	Yes	✓NO	Please Explain
If the power line is constructed in this corridor, the power line will pass through lands that are agricultural or open space, game farms etc where no registered servitude exists and hence a servitude will have to be registered to permit the construction of the power line. The landuse will however remain unchanged			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	✓YES	NO	Please explain
The KwaZulu Natal Provincial Spatial Development Framework has identified that one of the primary Provincial Growth and Development Strategies is to grow the economy and that growing the economy is reliant on the provision of reliable and affordable services by government. Such services include, amongst others, the provision of electricity. If electricity cannot be provided the economic potential of the province will not be realised. The KZN PSDF recognises that electricity supply is under stress in the province and that this is hindering development in all sectors.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
Not Applicable – Linear servitude outside built environment.			
(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 uPhongola IDP has identified that one of its main developmental challenges is the poor to non-existent physical infrastructure to deliver basic services such as electricity to the expanded areas, predominantly those areas located outside the boundaries of the former TLC. Both the IDP and SDF have identified that electrification within the Local Municipality is one of the Lead Projects for the region and that one of the limitations is the lack of electrical capability in the region along with a decent distribution network.			

(d) Approved Structure Plan of the Municipality	✓YES	NO	Please explain
The approved Structure Plan of the municipality has identified that tourism and agriculture are major economic development potentials in the region and that the development of these sectors without reliable electricity supply will be hindered.			
(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 of this application will not compromise the integrity of the Environmental Management Framework for the area, especially if the northern corridor is approved as this route is already developed for power distribution and hence not impact further on any environmental management frameworks.			
(f) Any other Plans (e.g. Guide Plan)	✓YES	NO	Please explain
uPhongolo Local Municipality Tourism Management Plan also highlights the need for better electrification in the region to enhance the tourism potential			
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
One of the objectives of the uPhongolo IDP is to provide infrastructure and basic services to the expanded areas predominantly outside the former TLC boundaries and this project will assist in achieving that objective in the next 2 – 5 years.			
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
With the construction of three proposed new 132kV substations for the supply of the greater Makhathini area viz. Ndumo, Gezisa (Manguzi) and Mbazwana substations, the existing Pongola-Candover 132kV line will be overloaded by 2013. Should the existing Pongola-Candover 132kV line be out of service for whatever reason then Makhathini, Gezisa, Ndumo and Nondabuya loads will be shed resulting in an inevitable loss of supply to the uPhongola and greater Makhathini areas and an unacceptable service to customers'. Without this new 132kV power line, it will not be possible for the region to achieve the electrification and economic objectives it has set in the IDP.			

<p>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.)</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>The power lines do not need any municipal services other than access roads for maintenance of the power line; and the site is easily accessible via existing roads. The Proponent will be responsible for the design and construction of required access roads.</p>			
<p>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.)</p>	<p>YES</p>	<p>NO</p>	<p>Please explain</p>
<p>Not Applicable - This project is an infrastructure upgrade project for Eskom and does not impact on the infrastructure planning of the municipality.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>Electricity shortage, the growing demand for electricity and the need to provide basic services to all communities is a national concern and priority.</p>			
<p>8. Alternative A1 – Northern Corridor 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.)</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>In the instance of the Northern Corridor alternative, there are already existing power lines in the proposed corridor connecting the Pongola Substation and the Candover Switching Station. Thus, a new power line will be erected in an area where a 132kV power line have already been integrated into the natural environment for over 20 years and structure design has been optimised to minimise visual intrusion and the cumulative effect of an additional power line.</p>			

<p>8. Alternative A2 and A3 – Central and Southern Corridors 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.)</p>	<p>YES</p>	<p>✓NO</p>	<p>Please explain</p>
<p>There are currently no high voltage power lines running in the entire areas associated with the Central and Southern Corridor Alternatives but 22kV and 11kV (medium and low voltage) overhead power lines do occur in some areas of these corridors. Thus, the construction of overhead power lines in these areas may not be considered favourable land use by the landowners and by organisations such as the Wildlife & Environmental Society of Southern Africa (WESSA) and Ezemvelo-KZN Wildlife.</p>			
<p>9. Alternative A1 – Northern Corridor Is the development the best practicable environmental option for this land/site?</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>In the instance of the Northern Corridor alternative, there is already an existing 132kV power line parallel to an adjacent vacant servitude connecting the Pongola Substation and the Candover Switching Station. Thus, a new power line will be erected in an area where a 132 kV power line has already been integrated into the natural environment for over 20 years and structure design has been optimised to minimise visual intrusion and the cumulative effect of an additional power line</p>			
<p>9. Alternatives A2 & A3 –Central & Southern Corridors Is the development the best practicable environmental option for this land/site?</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>There are currently no high voltage power lines running in the areas associated with the Central and Southern Corridor Alternatives and hence the construction of overhead power lines in these areas may not be considered favourable land use by the landowners and by organisations such as WESSA and Ezemvelo-KZN Wildlife.</p>			
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	<p>✓YES</p>	<p>NO</p>	<p>Please explain</p>
<p>The negative impacts of the development are all of low to moderate significance following mitigation (see section D) in all three corridors and the main benefit of the development i.e. improved reliability of electrical supply and increased supply to the region resulting in economic growth and alleviation of poverty is of high significance.</p>			
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>	<p>YES</p>	<p>✓NO</p>	<p>Please explain</p>
<p>The upgrade of electrical supply is not for profit gain, but is to provide essential services to an area and hence will not set a precedent. Additional upgrades will only occur in the region if the demand for the basic service requires it.</p>			

12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	<input checked="" type="checkbox"/> NO	Please explain
<p>The vacant servitude within the Northern Corridor has already been procured by Eskom and should additional servitudes be require then these will be secured through a willing landowner principal (similar to willing buyer willing seller principal). No relocation of people will be required. All processes have followed an extensive stakeholder consultation process and therefore no juristic or natural person's right will be adversely affected.</p>			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	<input checked="" type="checkbox"/> NO	Please explain
<p>This is a linear activity that will fall well outside the defined "urban edge" and is considered an isolated activity that will not encourage further urban development along its servitude or in association with its servitude.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	<input checked="" type="checkbox"/> YES	NO	Please explain
<p>This Project in support of the following SIPS:</p> <ul style="list-style-type: none"> • SIP 9: Electricity Generation to support socio-economic development. • SIP 10: Electricity Transmission and Distribution for all. 			
15. What will the benefits be to society in general and to the local communities?	Please explain		
<p>The potential benefit of the proposed power line to the Northern Zululand region lies in the stimulation of the local economy (specifically tourism and agriculture) through the supply of reliable electricity to improve service delivery to all sectors. Furthermore there will be some employment benefits during the construction phase of the project.</p>			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
<p>Improving the network reliability may reduce the number of communities reliant on domestic fires for their cooking and heating requirements which in turn will have the following benefits:</p> <ul style="list-style-type: none"> • Reduction in the harvesting pressure on natural woodlands in the region • Improved health of persons in these communities through the reduction in the inhalation of smoke fumes. 			
17. How does the project fit into the National Development Plan for 2030?	Please explain		
<p>The National Development Plan for 2030 has a vision that South Africa will have an energy sector that promotes economic growth and development through adequate investments in energy infrastructure and the provision of quality energy services.</p>			

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

This proposed 132kV power line development has been adequately assessed by competent Environmental Assessment Practitioners and discipline specialists. All potential impacts that may have a significant impact on the receiving environment have been identified and adequately assessed as required by the NEMA 2010 EIA regulations and mitigation measures developed and the impact significance reassessed. The conclusions of the environmental impact assessment have been concisely summarised to adequately inform decision-making by the competent authority. A comprehensive Public Participation Process was also undertaken, which conformed to requirements in Chapter 6 of the Environmental Impact Assessment Regulations. Furthermore, all Interested and Affected Parties will be given ample time (as per the requirements of the EIA Regulations) to review and comment on all documents and reports and the affected landowners will be empowered to be able to state their concerns and issues adequately.

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

The primary objective of the project is to provide a stable electricity supply to the Northern Zululand region of KwaZulu-Natal. The provision of a stable electricity supply with spare capacity will encourage future development in the area and will potentially improve the economic situation through job creation.

The social, economic and environmental impacts have been identified and rated by the EAP with the assistance of numerous specialists.

The environmental impact of power lines is well understood and the tower structures selected for this development have been chosen to reduce visual impacts, impacts on cultivated land and impact on avifauna.

A heritage survey, surface water and wetlands assessment as well as an ecological study were also undertaken as part of the basic assessment process and recommendations made by all the specialists for inclusion in the EMPr.

Three alternative corridors were identified and assessed as part of the Basic Assessment and a single corridor route was found to be more environmentally suitable than the other two based on ranking the significance of each aspect identified by the relevant specialist.

The Environmental Basic Assessment was advertised and members of the public were given the opportunity to register as I&AP as described in Section C: public participation and the issues and responses report (See Appendix E).

Most of the negative impacts associated with the project will occur during the construction phase. Where negative impacts are unavoidable they will be mitigated according to stipulations in the EMPr. Those impacts that can be addressed during the design phase have been identified and the mitigations recommended will form part of the design. The impacts of the proposed power line on wetlands and sensitive vegetation will be reduced by on site placement of towers to avoid placing them in wetland areas or in sensitive vegetation.

Recommendations and mitigations presented in the EMPr will reduce the disturbance to ecosystems and the loss of biodiversity. Where negative impacts are unavoidable, strict management and rehabilitation is recommended to minimise the potential negative impacts. The use of potentially polluting substances will be managed according to requirements in the EMPr. The EMPr will hold the developer responsible for any unnecessary negative impacts of the development on the environment.

The EMPr will include a rehabilitation plan and the cost to of rehabilitation required due to pollution or unnecessary environment degradation resulting from the activity will be the responsibility of the developer.

11 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Constitution of the Republic of South Africa (Act 108 of 1996)	The Constitution paves the way for the protection of the natural environment and heritage resources through the recognition of the right to a health and safe environment.	South African Government	1996
National Environmental Management Act (Act No 107 of 1998)	NEMA is the key environmental management legislation and states in s2(4)(k) that "the environment is held in public trust for the people, the beneficial use of resources must serve the public interest and the environment must be protected as the people's common heritage" thereby paving the way for EIA process to assess developments that may have a harmful impact on the environment.	National and Provincial Department of Environmental Affairs	1998
National Heritage Resources Act (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. The responsible heritage resources authority may require a heritage impact assessment where powerlines are being proposed	South African Heritage Resources Agency/AMAFA	1999
Environmental Impact Assessment Regulations (GN R543-546 of 2010)	The EIA regulations describe the EIA process to be followed including the public participation process, and the listed activities that may have a harmful impact on the environment and must be assessed.	National and Provincial Department of Environmental Affairs	2010
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	The Biodiversity Act provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, and equity in bio-prospecting. Some Critical Biodiversity Areas and vulnerable and endangered ecosystems have been identified by the vegetation specialist in the study	National and Provincial Department of Environmental Affairs And Ezemvelo KZN Wildlife	2004

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	site.		
National Environmental Management: Protected Areas Act (Act 57 of 2003)	The Protected Areas Act provides for the protection and conservation of ecologically viable areas representative of the country's biological diversity, its natural landscapes and seascapes. The proposed alternative routes runs through a non-statutory protected area.	National and Provincial Department of Environmental Affairs And Ezemvelo KZN Wildlife	2003
National Forests Act (Act 84 of 1998)	The development of the proposed project may result in damage or destruction of a tree under the National Forests Act	Department of Agriculture, Forestry and Fisheries (DAFF)	1998
National Veld and Forest Fires Act (Act 101 of 1998)		Department of Agriculture, Forestry and Fisheries (DAFF)	1998
Promotion of Access to Information Act (Act No 2 of 2000)		National Department of Environmental Affairs	2000
National Water Act (Act No. 36 of 1998)	This Act provides for the protection and management of water resources. A Water Use Licence Application is made to authorise water use activities pertaining to the altering of the bed and banks of a watercourse and diverting the flow of water in a watercourse. A WULA may be required on this project for the construction of tower structures within 500m of a watercourse.	Department of Water Affairs	1998
Conservation of Agricultural Resources Act (Act No 43 of 1983)	In terms of section 6 of the Act, the Minister may prescribe control measures with which all land users have to comply. The control measure may relate to the regulating of the flow pattern of run-off water, the control of weeds and invader plants, and the restoration or reclamation of eroded land or land which is otherwise disturbed or denuded. This act will regulate construction activities to prevent the spreading of invasive species and to ensure successful rehabilitation of the receiving environment.	Department of Agriculture	1983

Occupational Health and Safety Act (Act No 85 of 1993)	The OHSA governs and ensures the protection of employees in the workplace. A number of permanent and contract skilled and semi-skilled workers will be involved in the construction of the different aspects of the project. Their appointment and work periods will be subject to the provisions of the OHSA. This act and its regulations also govern the design and operation of power lines.	Department of Labour	1993
Electricity Regulations Act (Act No 4 of 2006)	This act establishes a national regulatory framework for the electricity supply industry; and provides for licences and registration as the manner in which generation, transmission, distribution, reticulation, trading and the import and export of electricity are regulated. The erection of new electricity distribution infrastructure is thus regulated in terms of this act.	National Energy Regulator of South Africa	2006
National Energy Act (Act no 34 of 2008)	The Act allows for the regulation and maintenance of security of energy supply in South Africa. The act empowers the energy regulator to invest in the maintenance of energy infrastructure, which includes the installation of electrical infrastructure in area where the grids is operating at near maximum	South African National Energy Development Institute	2008
National Environmental Management: Waste Act (Act No 59 of 2008)	Requires sustainable integrated waste management and implementation of the waste hierarchy.	Department of Environmental Affairs	

12 WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
---	-----------------------------

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

± 6 m ³

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

<p>Waste generated during the construction phase will be collected in designated areas, in facilities designed to safely store the waste. Waste separation for reuse and recycling will take place. Once sufficient volumes of waste have been collected, or once a month, whichever occurs first, the waste will be transported to the nearest suitably licensed/acceptable solid waste disposal facility waste facility. Receipts / waybills will be obtained from the facility for record purposes. An Integrated Waste Management Plan for this project is presented in Appendix J</p>
--

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

<p>General waste will be disposed of at a municipal landfill.</p>

Will the activity produce solid waste during its operational phase?

YES	<input checked="" type="checkbox"/> NO

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

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

<p>N/A</p>

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

<p>Pongola or Mkuze Landfills.</p>

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

<p>Pongola and Mkuze Landfills</p>

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	<input checked="" type="checkbox"/> 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	<input checked="" type="checkbox"/> 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	<input checked="" type="checkbox"/> 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	<input checked="" type="checkbox"/> 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	<input checked="" type="checkbox"/> NO
-----	--

If YES, provide the particulars of the facility:

Facility name:	N/A		
Contact person:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A

E-mail:

Fax:

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

c) Emissions into the atmosphere

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

YES	<input checked="" type="checkbox"/> 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:

d) Waste permit

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

YES	<input checked="" type="checkbox"/> 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?

<input checked="" type="checkbox"/> YES	NO
---	----

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

YES	<input checked="" type="checkbox"/> 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.

If NO, describe the noise in terms of type and level:

Construction Phase: Noise control regulations and SANS 10103: Short term noise impacts are anticipated during the construction phase of the project relating to the operation of heavy machinery. It is however anticipated that the noise will be localised and contained within the construction site. The applicant must adhere to the relevant provincial noise control legislation (if any) as well as SANS 10103. Working hours should be restricted to 07h00 to 18h00 Monday to Friday excluding public holiday.

Operational phase: A corona can be produced from water droplets forming on the conductor and crackling noise being formed from the breakdown of air molecules. (Eskom GFS 0009 Revision 2 Document, May 2004)

13 WATER USE

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

<input checked="" type="checkbox"/> Municipal Construction Phase	Water board	<input checked="" type="checkbox"/> Groundwater Construction phase	River, stream, dam or lake	Other	The activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

20 000 litres	
YES	<input checked="" type="checkbox"/> NO

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

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

14 ENERGY EFFICIENCY

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

The entire powerline design has been optimised over the years to prevent or reduce energy losses between the point of generation and use and hence is considered to be energy efficient.

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):

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	<input checked="" type="checkbox"/> 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	Kwa Zulu- Natal
District Municipality	District 26
Local Municipality	Uphongolo
Ward Number(s)	14
Farm name and number	See Appendix D1
Portion number	See Appendix D1
SG Code	See Appendix D1

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.

See **Appendix D1** for Property Description List and Property Boundary Map for all 3 Corridors

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

Agriculture and Open Space

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? **Not for any of the alternatives.**

YES	<input checked="" type="checkbox"/> NO
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1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1 – Northern Corridor:

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
	<input checked="" type="checkbox"/> 5% of corridor	<input checked="" type="checkbox"/> 80% of corridor	<input checked="" type="checkbox"/> 10% of corridor			<input checked="" type="checkbox"/> 5% of corridor

Alternative S2 – Central Corridor:

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
	<input checked="" type="checkbox"/> 10% of corridor		<input checked="" type="checkbox"/> 80% of corridor			<input checked="" type="checkbox"/> 10% of corridor

Alternative S3 – Southern Corridor:

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
		<input checked="" type="checkbox"/> 10% of corridor	<input checked="" type="checkbox"/> 80% of corridor			<input checked="" type="checkbox"/> 10% of corridor

See Appendix D2 for Topography Map for all 3 Corridors

2. LOCATION IN LANDSCAPE

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

Alternative S1 – Northern Corridor:

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

Alternative S1 – Central Corridor:

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

Alternative S1 – Southern Corridor:

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

See **Appendix D2** for Topography Map for all 3 Corridors

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative A1:		Alternative A2 (if any):		Alternative A3 (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).

Alternative A1- Northern Corridor

✓Natural veld - good condition ^E 80% of Corridor	✓Natural veld with scattered aliens ^E 10% of Corridor	✓Natural veld with heavy alien infestation ^E 5% of Corridor	Veld dominated by alien species ^E	Gardens
Sport field	✓Cultivated land 5% of Corridor	Paved surface	Building or other structure	Bare soil

Alternative A2- Central Corridor

✓Natural veld - good condition ^E 90% of Corridor	Natural veld with scattered aliens ^E 5% of Corridor	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	✓Cultivated land 5% of Corridor	Paved surface	Building or other structure	Bare soil

Alternative A3- Southern Corridor

✓Natural veld - good condition ^E 50% of Corridor	✓Natural veld with scattered aliens ^E 20% of Corridor	✓Natural veld with heavy alien infestation ^E 5% of Corridor	Veld dominated by alien species ^E	Gardens
Sport field	✓Cultivated land 15% of Corridor	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.

See **Appendix D3** for Ecological Report for all 3 Corridors and Land Use Map

5. SURFACE WATER

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

Alternative A1 – Northern Corridor

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

Alternative A2 – Central Corridor

Perennial River	YES	✓NO	UNSURE
Non-Perennial River	✓YES	NO	UNSURE
Permanent Wetland – 100 % altered by anthropogenic activities	✓YES	NO	UNSURE
Seasonal Wetland	YES	✓NO	UNSURE
Artificial Wetland	YES	✓NO	UNSURE
Estuarine / Lagoonal wetland	YES	✓NO	UNSURE

Alternative A3 – Southern Corridor

Perennial River	YES	✓NO	UNSURE
Non-Perennial River	✓YES	NO	UNSURE
Permanent Wetland– 100 % altered by anthropogenic activities	✓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.

Alternative A1: Northern Corridor

The Northern Corridor traverses across 23 non-perennial, intermittently inundated, seasonally saturated channelled valley-bottom streams.



Plate 1: View typical non-perennial stream in the study area

Alternative A2: Central Corridor

The Central Corridor traverses across 25 non-perennial, intermittently inundated, seasonally saturated channelled valley-bottom streams and one wetland. The non-perennial stream reflected in the photo in Plate 1 above is also typical of the non-perennial streams traversed by this corridor. The one wetland is located at the eastern end of the corridor and is shown in Plate 2 below. This wetland has been totally altered by anthropogenic activities.

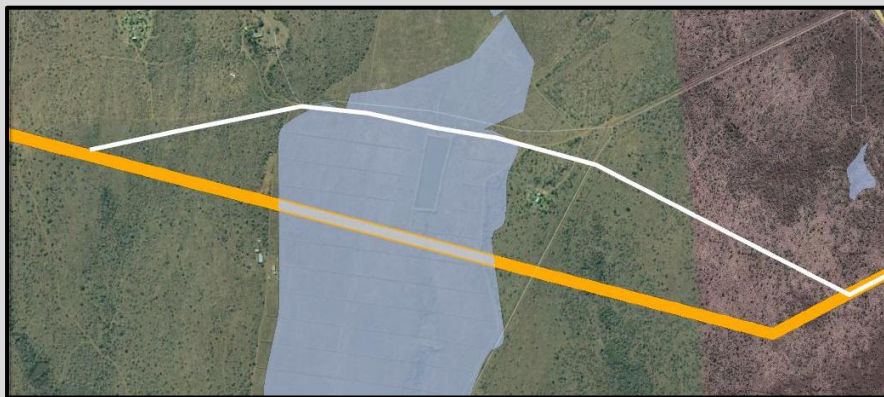


Plate 2: View of the wetland at the eastern end of the Central Corridor and Southern Corridors

Alternative A3: Southern Corridor

The Southern Corridor traverses across 29 non-perennial, intermittently inundated, seasonally saturated channelled valley-bottom streams and one wetland. The non-perennial stream reflected in the photo in Plate 1 above is also typical of the non-perennial streams traversed by this corridor. The one wetland is located at the eastern end of the corridor and is the same wetland as shown in Plate 2 above as the eastern stretch of the Central and Southern Corridors is shared. .

The **Surface Water Specialist Study** is presented in **Appendix D5**.

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:

Alternatives A1 – Northern Corridor, Alternative A2 – Central Corridor & Alternative A3 – Southern Corridor

✓ 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)

The maps showing the Landuse for all three corridors is presented in Append D3. The Map showing the Conservation Areas associated with all three corridors is presented in Appendix D3.

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

N/A

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

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

A map showing the **Protected/Conservation** areas in the region relatives to all 3 Alternative Corridors is presented in **Appendix A6**.

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	

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 specialist was appointed to undertake a heritage site survey of all 3 alternative corridors. The **Heritage Report** is presented in **Appendix D6**. The report identified a number of potential heritage sites located within or close to each alternative corridors. However the report concludes that the sites are not extensive and if identified prior to tower siting and final line alignment, these sites can be avoided and protected.

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

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

YES	<input checked="" type="checkbox"/> NO
-----	--

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

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

According to the 2012- 2013 uPhongolo IDP, an estimation of 52.18% of the entire population is economically active. Only 26.61% of this population group is employed which means that the unemployment rate is as high as 73.39% for the area.

Economic profile of local municipality:

The economy of uPhongolo is largely based on agricultural activities and tourism. Construction work is periodic construction work. The local economy is further characterised by the absence of beneficiation strategies. Raw products are transported to other industrial centres for further processing and this result in the erosion of the job creation potential of the area. The Public Sector remains the dominant provider of employment opportunities. This has a significant economic impact to the small number of employees in this sector. The informal sector is, however, expanding, primarily based on the taxi industry, informal financial services and taverns (uPhongolo IDP 2012-2013).

Level of education:

In 2007, 22.41% of the total adult population in the Municipality had no formal education, whilst a further 39.23% only had some primary education. Only 3.73% of the adult population had higher education(Census, in the 2012- 2013 uPhongolo IDP) .

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

R 74,121,670-00

What is the expected yearly income that will be generated by or as a result of the activity?

N/A

Will the activity contribute to service infrastructure?

<input checked="" type="checkbox"/> YES	NO
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Is the activity a public amenity?

<input checked="" type="checkbox"/> YES	NO
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How many new employment opportunities will be created in the development and construction phase of the activity/ies?	± 50 - 100
What is the expected value of the employment opportunities during the development and construction phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	Eskom BEE and affirmative action policies' will be enforced
How many permanent new employment opportunities will be created during the operational phase of the activity?	± 2 - 5
What is the expected current value of the employment opportunities during the first 10 years?	R unknown
What percentage of this will accrue to previously disadvantaged individuals?	Eskom BEE and affirmative action policies' will be enforced

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	90%	The vegetation on site can be subdivided into three main types i.e. Zululand Lowveld, Northern Zululand Sourveld and Shokwane-Hlane Basalt Lowveld.
Near Natural (includes areas with low to moderate level of alien invasive plants)	%	
Degraded (includes areas heavily invaded by alien plants)	%	
✓ Transformed (includes cultivation, dams, urban, plantation, roads, etc)	10%	Patches of agricultural land can be found on the extremities of the study area. The land is used by the traditional authorities and people for grazing of cattle and goats, while the non-traditional areas are mostly used for game farming/hunting farms.

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 unchannelled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline		
	Endangered								
	✓ Vulnerable								
	Least Threatened								
		✓ YES	NO	UNSURE	YES	✓ NO	YES	✓ NO	

The Ecological Specialist Report is presented as Appendix D3 of this report.

- 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 area according to Mucina and Rutherford (2007) and the spatial information provided by SA National Biodiversity Institute (SANBI) indicate that two vegetation units, namely Zululand Lowveld and Northern Zululand Sourveld are considered “vulnerable” in terms of their conservation status, while the habitat within the region, is noted as being of significance in terms of the National Environmental Management Biodiversity Act (NEMBA), being part of the Black Rhino Expansion Range.

Zululand Lowveld

Zululand Lowveld is an acacia dominated woodland with a number of vegetative forms including *closed canopy* tending towards *thicket*, as well as *open woodland*. Where lower lying, poorly drained soils occur, primarily to the east and north of the area, *Acacia xanthophloea* can form the dominant vegetative consociates, with *Phoenix reclinata* and *Gymnosporia senegalensis* being common, particularly following disturbance of the land. This vegetation unit is the dominant vegetation form within the study area and dense, closed canopy areas are located centrally within the study area. Also common to the site is *Dichrostachys cinerea*, *Euclea divinorum* and *Acacia nigrescens* which form dense stands where burning or overgrazing has been prolific. Open woodland forms comprising of low canopy cover and sporadic clustering of woody species which include *Acacia karoo*, *Bolusanthus speciosa* and *Sclerocarrya birrea* is notable, particularly to the west and south of the study area (Fig. 5). Open pure grassland patches, with occasional woody specimens are also apparent within the study areas, where *Themeda triandra*, *Panicum maximum* and *P. deustum* prove to be dominant.

Northern Zululand Sourveld

Northern Zululand Sourveld is a vegetative form comprising of open wooded grasslands tending towards, pure grassland, particularly where the land lies above, +/-500m amsl. This vegetation form comprises primarily of *Themeda triandra* and *Hyparrhenia hirta* graminoid species, grading to a more open Acacia dominated woodland form at lower elevations. The pure grassland stands are not particularly diverse, from a botanical perspective, however such areas offer a significant variation in habitat within the region and act as an important driver of diversity within the greater region. Such grasslands are of significant habitat value to larger avian species.

In the study area, the Zululand Lowveld vegetation prevails while Northern Zululand Sourveld is more limited in terms of its extent. Thus, at a regional level, it thus follows that these areas the Northern Zululand Sourveld, particularly the graminoid dominant areas, are of local significance.

The ecological report **concludes** that the most suitable route appears to follow that of the existing line (the northern line route), while the option of pursuing line routes either through the southern or central corridor options are less desirable in terms of impacts of an ecological significance.

The **Ecological Report** is presented in **Appendix D5**.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	a. Natal Mercury b. The Zululand Observer c. Vryheid Herald	
Date published	a. 22/02/2012 b. 24/02/2012 c. 24/02/2012	
Site notice position	Latitude	Longitude
	See Appendix E1.	
Date placed	10-12 August 2012	

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

Copies of the **advertisements** placed in the newspapers and photographed locations of the **site notices** are presented in **Appendix E1**.

2. DETERMINATION OF APPROPRIATE MEASURES

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

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

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Please see Appendix E2 for a complete list of the Key Stakeholders .		

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

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

Proof of **Notification of Key Stakeholders** is presented in **Appendix E2**.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
<p>Potential for proposed new powerline to have a direct negative impact on portions of the Pongola Game Reserve (Registered as a Nature Heritage Site No 127). Concerned about the potential impact that the project will have on the Natural Heritage Site registration and the game ranching and ecotourism industry.</p>	<p>These issues have been noted and have been assessed as part of this Basic Assessment. The findings are reported on in this report under the specialist studies and in the final Environmental Impact Assessment section.</p>
<p>The area is one which is not densely populated suggesting that there are areas of ecological value which would need to be considered.</p>	<p>This Final BAR reports on the findings of all the specialists on the three potential 132 kV powerline routes between the Candover Switching Station near Mkuze and the Pongola substation to the south of Pongola. The following specialists were appointed to carry out the investigations:</p> <ul style="list-style-type: none"> • Sustainable Development Projects CC – Ecological Assessments including avifauna, vegetation and terrestrial fauna • Jones & Wagener – Surface Water, Wetlands and visual assessments • PGS Heritage and Grave Relocation Services – Archaeology and Heritage assessments • Zitholele Consulting – Landuse Mapping and Impact Assessment <p>Their terms of reference were to assess the impacts of the proposed 132 kV Power line on each of the proposed routes and to make a recommendation regarding which would be the most suitable route for the construction of a 132 kV power line. This BAR clearly records those findings.</p>
<p>Spoornet raised issues concerning the crossing of the railway line and requested notification of the proposed crossing points.</p>	<p>None of the proposed power line corridors will cross over the Spoornet railway line.</p>
<p>Objection to having a second 132 kV power line running through property that is a game farm</p>	<p>The specialist studies have all concluded that it is preferable to follow an existing servitude where the impacts already exist and are defined</p>

<p>and is considered sensitive.</p>	<p>than to establish a new servitude and new impacts in areas where no such impacts exist especially since all the alternative corridors will also pass through game reserves/farms areas as well.</p>
<p>Maintenance of the power line and substation has to be improved and this needs to be addressed in the EMP.</p>	<p>The maintenance of these facilities has been included in the EMP. Eskom must make a commitment to complying with the requirements as stated in the EMP. If Eskom does not comply with the EMP, the affected parties have the legal right to report to the Department of Environmental Affairs.</p>
<p>Landowners where the existing 132 kV power line traverses have pointed out that the infrastructure acts as a visual deterrent to prospective visitors and tourists and lowers the aesthetic value of the farm.</p>	<p>The specialist studies have all concluded that it is preferable to follow an existing servitude where the impacts already exist and are defined than to establish a new servitude and new impacts in areas where no such impacts exist especially since all the alternative corridors will also pass through game reserves/farm areas as well. The specialists have recommended that in order to ensure that the additional line does not increase the negative impacts, the new power line tower positions should be in line with the existing tower positions in order to reduce any additional visual impact.</p>
<p>Landowners with the existing 132 kV power line traversing their properties have reported that servitude maintenance must be improved to reduce the negative impacts they are experiencing.</p>	<p>The maintenance of these facilities has been included in the EMP. Eskom must make a commitment to complying with the requirements as stated in the EMP. If Eskom does not comply with the EMP, the effected parties have the legal right to report to the Department of Environmental Affairs.</p>
<p>Landowners with existing 22 kV power lines traversing their properties have indicated that they frequently experience electrical surges which blow out the plug sockets in the house.</p>	<p>A technical response from Eskom to this issue is awaited from Eskom</p>
<p>One landowner gave the opinion that the route followed by the existing 132 kV power line should be used for the new power line.</p>	<p>Comment noted.</p>

<p>Landowners with 22 kV power lines across their properties indicated that they experienced issues with the Eskom maintenance crews poaching and wounding of animals by these crews. Stated that Eskom must notify the landowners whenever Eskom wanted to access the properties,</p>	<p>The issue is noted and has been included in the EMP for the proposed new power line. Landowners must open criminal cases when they believe that Eskom maintenance crews have committed a crime on their properties.</p>
<p>Existing 22 kV power lines have fallen down frequently (sic) and are a danger to animals and humans.</p>	<p>The issue of regular and timeous maintenance will be included in the EMP. However, incidences of force majeure cannot always be avoided.</p>
<p>When making decisions for the new power line alternatives along the R66 and R69 route, take into consideration existing power line servitudes.</p>	<p>These existing servitudes have been taken into consideration and have formed part of the feasibility assessment of each of the proposed corridors.</p>
<p>Eskom tariffs currently are very high and how will the new power line affect these tariffs?</p>	<p>The construction of the proposed new power line will not specifically affect the Eskom tariffs. These tariffs are set at a National level in consultation with the National Energy Regulator.</p>
<p>Power line routes should adhere to farm boundaries.</p>	<p>Wherever it is practicably possible, the alignment of the proposed new power line will adhere to farm boundaries. This requirement be included in the EMP.</p>
<p>The owner of Leeuwkop Farm has stated that he would not be happy if the proposed new power line were to run through his farm as he already feels the impact of the existing 132 kV power line which traverses through his game farm. The increase in the servitude would affect his farm.</p>	<p>The specialist studies have all concluded that it is preferable to follow an existing servitude where the impacts already exist and are defined than to establish a new servitude and new impacts in areas where no such impacts exist especially since all the alternative corridors will also pass through game reserve/farm areas as well. The specialists have recommended that in order to ensure that the additional line does not increase the negative impacts, the new power line tower positions should be in line with the existing tower positions in order to reduce any additional visual impact. The specialists have also recommended that the new power line should run parallel and as close as safely possible to the existing line to reduce all</p>

	impacts.
The issue of a fully cleared servitude was raised. Landowner requested that wherever possible trees be kept in the existing servitude and are only trimmed to maintain the safe clearance distances. The possibility for visual screening can be investigated.	Eskom has a substantial Bush Clearing procedure which allows for such clearing to occur under 132 kV power lines.
Use of existing roads is considered far more feasible for maintenance access and therefore routes following the R66 and R69 should be investigated.	Routes essentially following the R66 and R69 have been investigated as part of this assessment and the results are contained in this report.
The issue of safety of operating two 132 kV power lines in parallel was raised.	The power line positioning and design will take these safety issues into account and the lines new line will be located with significant space between it and the existing line to prevent such potential safety issues.
Accessing game farms during hunting season.	The issue of hunting and conflict with line construction and line maintenance has been taken into account and ways of planning construction and maintenance around these periods will form part of the EMP.
The issue of compensation for the additional 132 kV servitude across the effected properties was raised.	Once a final line route has been approved, the Eskom negotiators will meet with each of the affected landowners to negotiate consideration should a new servitude require acquisition. Both the southern and central corridors will require acquisition of a new servitude, but the northern corridor is a vacant servitude that that has already been acquired by Eskom and hence these landowners will not receive further compensation for the servitude, but may be compensated for crop losses during construction. Standard formulae and procedures are in place for this negotiation process and will be made available to the affected landowners.
Numerous small aircrafts fly in the area and would need to be notified of the existence of a new powerline.	The Civil Aviation Authority will be notified of the alignment of the new power line.

<p>Human settlements should be taken into consideration when planning the routes.</p>	<p>Noted. Wherever possible, the design team of new power lines avoids human settlement.</p>
<p>How will the power line affect cattle grazing?</p>	<p>Grazing land will be diminished only by the footprint area of the towers. Grazing in the remainder of the servitude can continue as normal and may even be improved by bush cleared areas under the power line</p>
<p>The possibility for an underground power line should be investigated and if that is feasible then that would work better.</p>	<p>The use of underground cables for the power line has been investigated as an alternative to the overhead power lines as part of this assessment. However, underground cabling has not proved to be a practicable solution for 132 kV power lines.</p>
<p>Maintenance and access to the existing power line will have a separate agreement to the new power lines. This needs to be aligned so that maintenance agreements are consistent.</p>	<p>Noted and will be included in the Operational EMP for the proposed new power line.</p>
<p>The power line has a negative visual and aesthetic impact which will affect tourism. The Pongola Game Reserve is a protected site and will be incorporated into the future development of a larger transfrontier project.</p>	<p>This issue has been noted and has been imparted to the specialists to incorporate into the specialist studies.</p>
<p>There needs to be mitigation measures dealing specifically with vulture breeding. The Pongola Nature Reserve is run by KZN Wildlife and can assist with this.</p>	<p>Ezemvelo KZN Wildlife will be requested to have input into this process and into including mitigation measures for Vulture protection in the final EMP.</p>
<p>Is it possible to build a new double circuit power line from Pongola to Candover and decommission the old one so that there is only one power line servitude going through their farms?</p>	<p>This is a possibility and it has been investigated as one of the alternative technologies in this report but has been found to be unsuitable for the following reasons:</p> <ul style="list-style-type: none"> • Faults or problems on one power line may mean that the other power line is also disabled during maintenance, and this will affect the quality of supply to an area. • Installation of the multi-circuit or double-circuit power lines requires dismantling the existing power line, and in cases where the existing affected power line is a radial feed, the end capacity may be disrupted.

	<ul style="list-style-type: none"> Larger and taller towers as well as more towers are required for double- and multi-circuit power lines. <p>These options may be implemented if sensitive environmental situations (where mitigation through other options is not possible) are encountered.</p>
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4. COMMENTS AND RESPONSE REPORT

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

The I&AP Comment and Response Report is presented in **Appendix E3**.

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 Water Affairs (DWA)	Mr Thys Badenhorst	(031) 336-2783	(031) 307-7279	BadenhorstT@dwa.gov.za	Chief Director: KZN Region Department of Water Affairs (DWA) P O Box 1018 DURBAN 4000
Department of Co-operative Governance & Traditional Affairs	Sipho Buthelezi	(034) 312-5380			Department of Co-operative Governance & Traditional Affairs (KZN) Private Bag X9078 PIETERMARITZBURG 3200
Department of Economic Development and Tourism	Ms Carol Coetzee	(033) 264-2500	(033) 264-2580	mthembus@kznded.gov.za	Head of Department Economic Development and Tourism Private Bag X9152 PIETERMARITZBURG 3201
Zululand District Municipality	Mr Johannes de Klerk	(035) 874 5500	(035) 874 5589/91	mm@zululand.org.za	Municipal Manager Zululand District Municipality Private Bag X76

						ULUNDI3838
Ezemvelo Wildlife	KZN	Ms Dinesree Thambu	(033) 845- 1425	(033) 845- 1499	thambud@kznwildlife.com	Principal Conservation Planner Ezemvelo KZN Wildlife P O Box 13053 CASCADES 3202
uPhongolo Municipality	Local	Mrs F Jardim	(034) 413- 1223	(034) 413- 1223	mm@uphongola.org.za	Municipal Manager uPhongolo Local Municipality P O Box 191 PONGOLA 3170
Department of Agriculture, Forestry and Fisheries		Mr Makhosi Mdamba	(035) 780- 6700	(035) 789- 0662	Makhosi.Mdamba@kzndae.gov.za	Department of Agriculture, Forestry and Fisheries (KZN) 65 Victor Street DUNDEE

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

The proof of notification of Authorities and Organs of state is presented in **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 list of registered I&APs is included in **Appendix E5**.

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

Copies of correspondence and meetings are included in **Appendix 6**.

SECTION D: IMPACT ASSESSMENT

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

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

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

The detailed Environmental Impact Assessment Report is presented in **Appendix F** and the findings are summarised in the following tables:

PLANNING AND DESIGN PHASE

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
		A1	A2	A3		A1	A2	A3	
Heritage Sites	Direct impacts: Damage to heritage and archaeological sites as a result of position of the towers.	L-	L-	M-	Select route within corridor least likely to impact on heritage sites. Appoint heritage specialist at design phase to assist with identification of sites and placement of towers. Avoid location of towers on or near heritage sites	L-	L-	L-	Heritage sites of various significance were identified in close proximity to all the proposed corridor alignments. However, implementation of the proposed mitigation measures will result in the potential negative impact being of LOW significance for all 3 corridors.
	Direct impacts: Damage to heritage sites and archaeological sites as a result of the alignment of access roads.	M-	M-	M-	Ensure access plan detailing exact access routes is developed prior construction. Appoint heritage specialist to review proposed access plan and routes to verify that they do not pass through or close to heritage sites.	L-	L-	L-	Heritage sites of various significance were identified in close proximity to all the proposed corridors. However, the implementation of the proposed mitigation measures will result in the potential impact being of LOW significance for all 3 corridors.
Avifauna	Direct impacts: Interference with bird flight paths and increased potential for bird collisions with conductor.	L-	M-	M-	Select alignment within chosen least likely to impact on avifaunal flight paths. Appoint avifaunal specialist to assist with specific location of towers within corridor to avoid flight paths and to advise alignment in vicinity of established vulture feeding restaurants. Appoint avifauna specialist to advise on placement of Bird diverters.	L-	M-	M-	Bird activity is not expected to vary from one corridor to another due to a uniform habitat distribution across all the corridors. However, the advantage of the northern corridor is that there is an existing power line to which resident birds have become adapted to its presence in the landscape. A parallel second power line would increase the visibility of this hazard to flying birds and thus it would be expected to result in lower rates of bird collisions particularly if additional mitigation measures were applied. Furthermore, the central and southern corridor routes pass through and adjoin areas where a

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
									<p>power line hazard to flying large raptors presently does not exist. Also the resident large bird species populations would be unaware of the risk posed to their lives should such a power line be constructed and pass through their home ranges. In addition the central route lies far to close or may even pass through a highly sensitive breeding site comprising at least 12 nests of three endangered vulture species and thus constitutes a high risk through disturbance, collision and or electrocution to both adult breeding and newly fledged birds. The central and southern areas currently constitute safe habitat for foraging and breeding large raptor species and thus should not be interfered with by the proposed power line development but remain in its present protective state.</p>
	<p>Direct impacts: Bird electrocutions</p>	L-	M-	M-	<p>Ensure tower design and type is best for preventing/discouraging the roosting of birds on the structures. Also ensure that suitable bird repelling structures, such as bird guards are considered in the design. Ensure that the cross arms of the delta structures in areas of heavy bird activity (such as wetlands and vulture nesting grounds and vulture restaurants) are all</p>	L-	M-	M-	<p>The advantage of the northern corridor is that there is an existing power line to which resident birds have become adapted to its presence in the landscape and the risks that it poses.</p>

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
					fitted with anti-roosting spikes				
	Cumulative impacts:								
Social and Socio-economic	Direct impacts: Loss of agricultural land due to area occupied by the towers	L-	L-	L-	Avoid placement in crop lands directly wherever possible. This can be readily achieved on all routes.	L-	L-	L-	There is slightly more area under agriculture along the northern corridor and hence a slightly higher probability of towers being placed in agricultural land but the potential negative impact remains low due to the small area that will be impacted upon.
	Direct Impacts: Negative visual and “sense of place’ impact on tourism venues primarily consisting of nature/game reserves/farms with lodge accommodation.	H-	H-	H-	Position towers in such a way to be sensitive to tourism venues. In the case of the northern corridor, keep tower positions in same alignment as existing tower positions. In case of the central and southern corridors, site towers out of view of lodges.	M-	M-	M-	The northern corridor scores slightly lower in terms of magnitude because the impact already exists and those tourism facilities are currently assimilating the negative impact whereas these will be totally new negative impacts to the central and southern corridors. Most biophysical impacts compound one another, however in the case of visual impact, often stakeholders prefer to have impacts in areas of existing impact. In the case of the Pongola-Candover line, the visual impact of one or two lines against the backdrop of the bushveld vegetation will not significantly increase the visibility rating above what currently exists.
	Cumulative impacts:								
Vegetation	Direct impacts: Increased potential for loss of indigenous vegetation due to alignment of power line and position of towers.	L-	M-	M-	Select corridor and route least likely to impact on indigenous vegetation. Where possible locate towers and alignment in areas of least dense	L-	L-	L-	4.27 km of natural bush will require clearing along the northern corridor for the servitude and 4.5 km for new access roads. 19.44 km of natural bush will require clearing along the

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
					indigenous bush and tree cover to minimise the amount of bush clearing required. Also attempt to select a route where minimal bush clearing is required for the purposes of access.				central corridor and 8km for new access roads. 21.93 of natural bush will require clearing along the southern corridor and 7 km for new access roads. Hence a total of 18.77 km of natural bush will be cleared on the northern route compared to 27.44 for the central route and 28.93 for the southern route
	Direct impacts: Increased potential for loss of species biodiversity due to alignment of power line and position of towers	L-	M-	M-	Where possible locate towers and alignment in areas identified as consisting of species typical and numerous in the area. Make use of specialist during alignment and identification of access routes to achieve this.	L-	M-	M-	The ecological report has shown that species biodiversity is expected to be lower in the northern corridor due to higher level of anthropogenic activity and the more common Zululand Bushveld dominating on this corridor as opposed to the other two corridors.
	Direct Impacts: Increased potential for loss of rare or endangered species due to alignment of power line and position of towers.	L-	M-	M-	Use specialist to identify rare and endangered species and to assist in aligning power line and placement of towers within corridor to reduce potential for impact on rare endangered species.	L-	M-	L-	The ecological report has shown that species biodiversity is expected to be lower in the northern corridor due to higher level of anthropogenic activity and the more common Zululand Bushveld dominating on this corridor as opposed to the other two corridors.
Visual	Direct Impacts: Increased potential for visual impacts to lodges, homesteads and other tourism operations based on power line alignment and position of the towers.	H-	H-	H-	Where possible avoid placing towers in front of homesteads, lodges, hunting areas, sense of place areas, against skyline views - keep towers below escarpments or hills to ensure visual obscuring. In the case of the northern corridor tower spacing should match existing line.	L-	M-	M-	Due to the number of existing tourism and homestead facilities overlooking all 3 corridors, the negative visual impact is ranked equally. However, the facilities along the northern corridor route have been accustomed to the impact due to the presence of the existing 132 kV power line and therefore the magnitude of the negative impact along the northern is rated a little lower.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
Ecological	Direct Impacts: Increased potential for habitat transformation due to inappropriate aligning of the power line.	M-	M-	M-	Select corridor and route least likely to require habitat transformation though excessive bush clearing or platform cutting (soil disturbance) Where possible locate towers and alignment in areas of where habitat transformation has already occurred	L-	M-	M-	Habitat transformation is likely to be less of an impact along the northern corridor because transformation for the construction of the existing 132 kV powerline has already occurred. This corridor has also been subjected to greater impact by anthropogenic activities than the central and southern corridors. Also use of already existing servitude access will prevent further transformation
	Direct Impacts: Increased potential for habitat transformation due to the need to construct access roads to difficult areas.	M-	H-	H-	Select route within corridor that requires least amount of invasive road construction works. Access plan to be determined prior to construction to ensure best access routes are selected to keep cutting to a minimum. Repair existing access routes before making new access routes.	M-	M-	M-	Further habitat transformation as a result of road construction is likely to be less along the northern route where access along the existing servitude exists for most of the line route but requires repair. 4.5 km of road is required to be repaired or constructed for the Northern Corridor, 8 km of new road will be required along the central corridor and 7 km of new road will be required along the southern corridor.
Conservation Areas	Direct Impacts: Increased potential for impact on conservation areas due to inappropriate aligning of the power line.	M-	M-	M-	Select corridor and route least likely to introduce new impact in previously non-impacted conservation areas.	L-	M-	L-	The approximate % of the Northern, Central and Southern power line corridor routes that traverse game farms and or Nature Reserve are as follows: Northern – 53.6% Central – 79.5% Southern – 48 % Although conservation areas are present on all corridor alternatives, the fact that a power line already exists in the northern corridor favours this route to prevent introducing new impacts to otherwise pristine areas.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
		L-	M-	M-		L-	L-	L-	
Surface water and wetlands	Direct impacts: Potential for physical damage to water resources due to the alignment of the power line and the position of the towers.	L-	M-	M-	Use findings of specialist study to select route within corridor with least potential to impact on water sources and to assist in placement of the towers to avoid these features. Ensure wetland assessments undertaken to position towers outside required legal buffers.	L-	L-	L-	Both corridors A2 and A3 have a wetland crossing and slightly higher numbers of non-perennial streams to cross. Corridor A1 has no wetland crossings. However, due to the nature of the power line, impact on all these systems can be avoided by careful route selection and tower placement and hence the mitigated impact for all 3 corridors is low.
Landuse:	Direct Impacts: Introduction of a non-compatible landuse into an area due to inappropriate alignment of the power line.	M-	M-	M-	Select corridor and route within corridor least likely to introduce new incompatible land use into new areas	L-	M-	M-	The fact that a powerline already exists in the northern corridor favours this route to prevent introducing incompatible landuse to other more pristine areas.
Economic Development	Cumulative Impacts: Strengthening of the grid will ensure uninterrupted electricity supply in Northern Zululand.	H+	H+	H+	The new 132 kV Power line must be constructed to achieve this result in the region and to ensure the success and efficiency of all the other grid strengthening activities that are being planned in the region.	H+	H+	H+	Strengthening of the will assist with improving economic development in the region, alleviating poverty and assist with provision of basic services to all - HIGH POSITIVE IMPACT

CONSTRUCTION PHASE

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
		A1	A2	A3		A1	A2	A3	
Heritage Sites	Direct impacts: Damage to or destruction of archaeological and heritage sites as a result of construction activities	L-	L-	M-	Ensure all identified sites are clearly demarcated prior to construction and that all persons on site are sensitised to the issue and the	L-	L-	L-	Heritage sites of various significance were identified in close proximity to all the proposed corridor alignments. However, implementation of the proposed mitigation measures will result in the potential negative impact

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
					significance. Stop work if new site exposed during construction. Notify relevant authorities.				during construction being of LOW significance for all 3 corridors.
Avifauna	Direct impacts: Disturbance of birds, damage to nests or nesting grounds	M-	M-	M-	Identify areas where known nesting grounds are located and avoid taking access roads near these areas. Sensitise employees to issue. Ensure all construction remains in minimal footprint area. Ensure access roads clearly marked and adhered to at all times.	L-	M-	M-	There will be some disturbance to bird life during construction but this can be reduced by implementing simple mitigation measures. The central corridor lies close to a highly sensitive breeding site comprising at least 12 nests of three endangered vulture species and thus constitutes a high risk through disturbance. The central and southern areas currently constitute safe habitat for foraging and breeding large raptor species and thus should not be interfered with by construction activities.
Social and Socio-economic	Direct impacts: Damage to agricultural lands by construction activities.	L-	L-	L-	Negotiate access to agricultural lands with landowner. Sensitise employees to issue. Ensure all construction remains in agreed footprint area. Ensure access roads clearly marked and adhered to.	L-	L-	L-	There will be some damage to crops during construction but this can be reduced along all 3 corridors by implementing the mitigation measures.
	Direct Impacts: Negative visual and “sense of place’ impact on tourism venues primarily consisting of nature/game reserves with	M-	M-	M-	Design and time construction activities in association with landowners to minimise the interference effects. Landowners can arrange	M-	L-	L-	Construction will have a negative impact on tourism especially in terms of the nature reserves and game farms but the impact can be minimised through planning. The

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
	lodge accommodation as a result of construction activities.				tourism activities to avoid construction area for duration of contract..				impact is expected to be greater along the northern corridor as there are a greater concentration of tourism activities associated with this corridor.
	Direct Impacts: Interference with hunting activities on hunting concession game farms	M-	M-	M-	Design and time construction activities in association with landowners to minimise the interference effects. Landowners can arrange hunting activities to avoid construction area for duration of contract or can arrange with contractor to work elsewhere while hunters are on the property i.e. an operation plan to minimise impacts on the hunting season between May and October can be developed to suit landowner and contractor..	M-	L-	L-	The impact on hunting concessions by construction (and vice versa) will be greater along the northern corridor where commercial hunting concessions are more numerous. However, the area that the construction of the powerline will affect is restricted to the servitude and agreed access routes and hence the impact can be managed.
	Cumulative impacts: Creation of temporary jobs during construction	M+	M+	M+	Contractor to employ as many local labourers as is feasibly possible.	H+	H+	H+	Construction phase will create temporary jobs for unskilled labour and drivers. This will result in a significant moderate positive impact in the area.
Vegetation	Direct impacts: Unnecessary loss of rare and endangered species due to bush clearing and access activities	L-	L-	L-	Ensure specialist identifies presence of rare and endangered species prior to construction. Carry out search and rescue at all sites –	L-	L-	L-	If no controls are in place then there is a chance that some rare or endangered species will be damage during these activities. The potential for realisation of this impact is the

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
					appropriate routing of vehicle access.				same across all the corridors.
	Direct impacts: Unnecessary loss of indigenous vegetation due to bush clearing and access activities	L-	M-	M-	Ensure competent bush clearer appointed to clear alignments. Ensure only required clearing is undertaken. Ensure area to be cleared is properly and clearly demarcated.	L-	L-	L-	Clearing of an incorrect servitude or access route can cause unnecessary clearing of vegetation but can be prevented through implementation of mitigation measures. Impact potentially greater along central and southern routes due to more bush requiring clearing
	Direct Impacts: Bush clearing through riparian and riverine vegetation may result in unnecessary loss of riparian and riverine vegetation.	M-	M-	M-	Bush clearing through these areas must be kept to a minimum and must permit access on foot only i.e. clearance of a narrow strip only and selective trimming for the purposes of maintaining electrical clearances.	L-	L-	L-	Poor management of construction vehicle access can result in the development of multiple tracks on a servitude.
	Direct Impacts: Uncontrolled vehicle access can result in unnecessary loss of indigenous and riparian vegetation.	M-	M-	M-	Ensure access routes are planned, clearly demarcated and suitable for the vehicles that will be using them. Ensure drivers are sensitised and disciplined to the issue. Vehicle access through riparian or wetland system to be limited to pre-existing formal access only.	L-	L-	L-	Poor management of clearing the servitude through riparian and riverine vegetation can result in unnecessary damage to these sensitive environments
	Direct Impacts: Control of invader species along servitude	M+	M+	M+	Ensure policies are strictly and consistently enforced through	M+	M+	M+	The bush clearing and invader species management policies of

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
	and access roads.				construction phase.				Eskom encourage clearing and management of invader species in the entire project area - POSTIVE IMACT
	Indirect Impacts: Bush clearing along servitude and access routes may increase the risk of invader species encroachment.	M-	M-	M-	An invader species eradication and management plan must be developed for the construction phase and must be implemented consistently throughout construction phase	L-	L-	L-	The clearing of indigenous vegetation creates an opportunity for encroachment by invader species in to areas that are relatively pristine.
	Indirect Impacts: Vegetation removal can increase erosion potential	M-	M-	M-	Bush clearing may only occur through cutting or trimming. No scalping or ploughing of the earth is permitted.	L-	L-	L-	If the servitude, access routes and construction areas are denuded, there will be a significant increase in erosion
	Indirect Impacts: Vegetation removal can result in the loss of topsoil	M-	M-	M-	Bush clearing may only occur through cutting or trimming. No scalping or ploughing is permitted. Topsoil removed from foundation sites or drum stations must be removed and stored for rehabilitation and protected from erosion during storage.	L-	L-	L-	If the servitude, access routes and construction areas are denuded, there will be a significant increase in erosion and loss of topsoil
	Indirect Impacts: Hardening of soil surfaces by construction activities can prevent the revegetation of an area and promote erosion	M-	M-	M-	All hardened surfaces will be ripped during the rehabilitation phase to assist with rapid vegetation re-establishment.	L-	L-	L-	Hardening of soil surfaces will prevent the re-establishment of vegetation.
Ecological	Indirect Impacts:	M-	M-	M-	Must be limited by minimising	L-	L-	L-	Activities during construction will

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
	Construction activities will cause fragmentation of habitats during construction.				clearance wherever possible; by ensuring good discipline of vehicle movements on site and staying on one track.				divide up the continuity of habitats and prevent natural movements.
Surface water and wetlands	Direct impacts Physical damage to wetlands and streams through encroachment by construction activities	M-	M-	M-	Ensure all wetlands and streams are identified and all access routes, laydown area, drum stations etc are not located within the buffer zones of these features.	L-	L-	L-	If unplanned and uncontrolled, these activities may impact negatively on the perennial wetlands and streams within all the corridors.
	Direct Impacts: Bush clearing can result in increased stormwater run-off and soil erosion	M-	M-	M-	Bush clearing may only be achieved through cutting - no scalping will be permitted. Destumping of trees on stream and river banks will not be permitted.	L-	L-	L-	Poor bush clearing practices can result in increased stormwater flow and soil erosion.
Noise	Direct Impacts: Operation of construction equipment and vehicles will increase noise levels	L-	L-	L-	Ensure all vehicles and equipment are in good working order and within allowable noise ranges. Equipment exceeding allowable must be equipped with silencers or removed from site. Operations should occur during acceptable working hours. All noise complaints shall be recorded, investigated and rectified immediately. Construction camps and batching plants	L-	L-	L-	Noise levels will increase at the construction areas only.

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
					must be sited outside of conservation/game farms/nature reserve areas. During hunting season, negotiations to keep hunting concessions away from work areas will be required. Contractor employees to be sensitised to requirement to keep all noise to a minimum.				
Air Pollution	Direct Impacts: Movement of vehicles will result in dust impacts	L-	L-	L-	Where sensitive environments are identified or complaints received dust suppression must be implemented. Vehicle speeds must be limited to slow speeds on gravel roads and tracks. Dust complaints must be recorded, investigated and addressed immediately.	L-	L-	L-	Dust will be generated at construction sites and along access roads.
Fires	Direct Impacts: Movement of vehicles through dry grassland can cause fires. Work forces increase the risk of fire in an areas.	M-	M-	M-	No open fires will be permitted on site. Smoking may only occur during controlled breaks at a designated smoking area with appropriate fire protection facilities. Long grass to be trimmed or flattened along access routes. Contractor to join the local fire protection association.	L-	L-	L-	Risk of fire is high during the winter months and requires risk management
Traffic	Direct Impacts: Construction	L-	L-	L-	Construction vehicle drivers	L-	L-	L-	The number of vehicles is not

BASIC ASSESSMENT REPORT

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
	will result in increased traffic flow in specific routes in the region which may impact on other users				must be considerate to all other road users at all times				expected to increase flow volumes on provincial roads substantially.
	Indirect Impacts: Deterioration of public and private roads due to passage of construction vehicles.	L-	L-	L-	Ensure vehicles are not overloaded. Repair damage caused by construction vehicles to private roads immediately. adhere to speed limits. don't drive in certain areas when wet. Ensure photographs of access routes and roads are obtained for all routes prior to construction.	L-	L-	L-	Movements of construction equipment on construction roads can cause damage.
Operations	Direct Impacts: Spillage of hazardous substances into the natural environment	M-	M-	M-	All vehicles and equipment must be in good working order. Equipment/vehicles with permanent leaks must be removed from site. Drip trays must be available with all vehicles and all areas where hazardous substances are being used.	L-	L-	L-	The potential for spills of hazardous substances from leaking fuel tanks, diffs and from handling errors exists but can be managed.
	Direct Impacts: Poor waste management can cause environmental damage	L-	L-	L-	An integrated waste management plan must be compiled during site establishment and must be implemented continuously throughout the construction phase.	L-	L-	L-	Poor waste management can lead to soil, water and air pollution.

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
Economic Development	Cumulative Impacts: Strengthening of the grid will ensure uninterrupted electricity supply in Northern Zululand.	H+	H+	H+	The new 132 kV Powerline must be constructed to achieve this result in the region and to ensure the success and efficiency of all the other grid strengthening activities that are being planned in the region.	H+	H+	H+	Construction phase will create temporary jobs for unskilled labour and drivers. This will result in a significant moderate positive impact in the area.

OPERATIONAL PHASE

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
		A1	A2	A3		A1	A2	A3	
Fires	Direct impacts: Ignition of veld due to conductor failure or flash overs	L-	L-	L-	Regular line inspections to ensure the integrity of the line.	M-	M-	M-	Fires do occur on occasion as a result of conductor failure. However, design has been optimised to prevent such events wherever possible
Avifauna	Direct impacts: Electrocution of avifauna and collisions with the conductor	L-	L-	L-	Ensure that all these bird diversion structures remain in working order at all times. If an increase in bird strikes is observed, then bird diverter and bird guard placement may have to reviewed and improved.	L-	L-	L-	This impact will be low during operation due to the placement of bird diverters to increase the visibility of the conductor. The tower structure to be used reduces the probability of bird electrocutions and bird guards will be implemented where required.
Servitude Maintenance	Direct Impacts: Overgrown servitude and associated electrical clearance problems	M-	M-	M-	Eskom to ensure that the vegetation clearance and line maintenance occurs as per Eskom Policies.	L-	L-	L-	This impact has been rated moderate due to the number of issues raised by landowners in the area relating to poor servitude maintenance.
	Direct Impacts: Poor maintenance of access tracks results in erosion of these tracks.	M-	M-	M-	Eskom to ensure that the access maintenance occurs as per Eskom Policies. Suggest cooperating with landowner to maintain access tracks.	L-	L-	L-	This impact has been rated moderate due experience of other eskom lines where maintenance of the access tracks is non-existent and significant erosion features have developed
	Indirect Impacts: Poor lock management on Eskom servitude gates exposes landowners to illegal trespassers and provides	M-	M-	M-	Eskom to ensure that the access maintenance servitude gates and locks occurs as per Eskom Policies. Suggest cooperating with landowner to	L-	L-	L-	This impact has been rated moderate due experience of other eskom lines where lock management on servitude gates has assisted criminal access to private land.

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance			Impact Statement
	access to criminals and creates a poaching risk.				maintain security.				
Provision of electricity	Indirect Impacts: Faulting causing Loss of stable electricity supply i.e. outages which impacts negatively on businesses hospitals, schools etc.	L-	L-	L-	Strict maintenance regime must be upheld to ensure faulting levels remain low.	L-	L-	L-	This impact has been rated Low as the commissioning of this proposed powerline will reduce the risk of faulting and power outages in the region
Economic Development	Cumulative Impacts: Strengthening of the grid will ensure uninterrupted electricity supply in Northern Zululand	H+	H+	H+					Strengthening of the will assist with improving economic development in the region, alleviating poverty and assist with provision of basic services to all - HIGH POSITIVE IMPACT

NO GO OPTION

Activity	Impact summary	Pre-mitigation Significance			Proposed mitigation	Post-Mitigation Significance		
		A1	A2	A3		A1	A2	A3
Biophysical Environment	<i>Direct impacts:</i> Environment remains in the current status quo	L+	L+	L+	No mitigation required			
Socio-Economic Environment	<i>Indirect impacts:</i> The current unreliable supply of electricity in the region and the lack of capacity to supply planned economic growth and delivery of basic services will negatively impact the socio-economic growth of the region resulting in failure of the Provincial, District and Local Municipalities to achieve the stated IDP targets and objectives.	H-	H-	H-	Construct the proposed 132 kV powerline between the Pongola substation and Candover switching station.	H+	H+	H+

The **complete impact** assessment methodology and ranking tables are presented in **Appendix F**

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 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.

Based on consideration of the specialist assessment reports of the preferred and alternative route options and the assessment of all identified impacts as presented in the Impact Assessment section of this report, the critical impacts of the preferred and alternative corridors are summarised in the following table:

Impact Assessment Summary Table

Impact Type	Significance Points and Impact Ranking After Mitigation			Discussion
	Northern Corridor	Central Corridor	Southern Corridor	
Heritage Impacts	14 LOW	14 LOW	14 LOW	The potential impact to heritage sites is the same along all three corridors and can readily be mitigated by careful sighting of the towers with the assistance of a heritage specialist.
Avifauna Impacts	22 LOW	36 MODERATE	36 MODERATE	The development of the power line along the northern corridor has a potentially lower impact to bird life due to the fact that there is an existing power line to which resident birds have become adapted to its presence in the landscape. A parallel second power line would increase the visibility of this hazard to flying birds and thus it would be expected to result in lower rates of bird collisions.
Social and Socio-economic Impacts	27 LOW	34 MODERATE	34 MODERATE	The development of the power line along the northern corridor has a potentially lower impact to social and socio-economic activities because the impact already exists and the activities in this area are currently assimilating the negative impact whereas these will be totally new negative impacts to the central and southern corridors
Vegetation Impacts	11 LOW	33 MODERATE	26 LOW	A total of 18.77 km of natural bush will be required to be cleared along the northern corridor compared to 27.44 km along the central corridor and 28.93 km along the southern corridor. Species diversity is expected to be higher along the central corridor and hence a greater impact can be expected along this corridor while the

No-go alternative (compulsory)

The 'No Go' alternative in the context of this project implies that the power line would not be constructed. If the powerline does not go ahead, the negative environmental impacts which have been identified if it does go ahead would not occur. However, if the powerline is not constructed and commissioned, the region would be negatively affected by an inadequate and unreliable supply of electricity (basic service) which would inhibit future development in Northern Zululand and would jeopardise the success of the regions Integrated Development Plans and Spatial Development Frameworks, all of which identify the lack of electrical services as inhibitors to future development and quality of life. Therefore, the need for stable and reliable power supply to meet current and future demand will likely outweigh the potential negative impacts to the surrounding environment. It is thereby concluded that the „No-go“ option is not a viable or acceptable option, and should therefore be discounted.

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

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

The EAP therefore recommends that the Preferred Alternative (A1) – Northern Route, which follows the existing 132 kV powerline between Candover Switching Station and Pongola Substation, as described in this Basic Assessment Report, be authorised. In the opinion of the EAP derived from specialist input, the proposed activity is not fatally flawed and all potential impacts can be mitigated to an acceptable level. Apart from the general mitigation measures included in the EMP, the following should form specific clauses in the authorisation:

- The proposed 132 kV powerline route must be located as close as technically safe to the existing 132 kV powerline route to allow the two powerlines to share a portion of their corridors to reduce the overall cumulative impact.
- The tower positions of the proposed 132 kV powerline must, as far as is technically possible, line up with the existing towers to maintain the existing level of visual impact.
- Micrositing of towers must occur in consultation with the affected landowners to ensure that their concerns are addressed as far as is practically possible.
- The EMP for the operation of the powerline must include specific access and bush clearing requirements as specified and agreed with each landowner by Eskom.
- Input into the siting of the towers and the use of bird diverters and bird guards must be obtained during the design phase from an avifauna specialist.
- The clearing of bush along the servitude during construction and maintenance must not be for the entire 36 m servitude, but must be only for that required for the purposes of access, construction and safe operational working.

Is an EMPr attached?

✓YES	NO
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The EMPr must be attached as Appendix G.

The **Environmental Impact Management Report** is presented in **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.

WARREN KOK

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F. APPENDICES

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility Illustrations

Appendix D: Specialist Reports (Including Terms of Reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and Expertise

Appendix I: Specialist Declaration of Interest

Appendix J: Additional Information