

ESKOM DISTRIBUTION DIVISION



**Basic Environmental Assessment for the
construction of 132kV distribution lines from
Melkhout to Patensie, Cacadu District**

FINAL

Report date: 9 November 2012

J29224

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BASIC ASSESSMENT REPORT

Basic Environmental Assessment for the Construction of 132kV distribution lines from Melkhout to Patensie, Cacadu District

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APPENDICES

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NOTE:

Additions are highlighted grey

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environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

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

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.

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

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SECTION A: ACTIVITY INFORMATION

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

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

Eskom's core business is in the generation, transmission and distribution of electricity. Eskom generates approximately 95% of the South African electricity in accordance with supply and demand requirements. Reliable provision of electricity by Eskom is critical for industrial and sustainable development in South Africa, which inevitably provides and sustains job opportunities for jobseekers. As electricity cannot be stored, power is generated and delivered over long distances as it is required. This is achieved through thousands of kilometres of high voltage transmission, and distribution lines which transmit this power from power stations located outside the Eastern Cape Province, to Eskom's major substations. At these major substations, the voltage loading is reduced and distributed to smaller substations. From here the voltage is further reduced for distribution to industry, businesses, farms and homes. In order to maintain a reliable power supply within the entire network, the voltages at all substations are required to be within certain desired limits.

If the network is operated at voltages below these limits, power outages may be experienced, which results in unreliable electricity supply. In order to avoid this, the distribution network must have the capacity to supply the electricity required by the customers at all times. The network must therefore be designed with reserve distribution capacity in order to ensure an uninterrupted supply of electricity.

The electricity network in the Humansdorp area is already operating close to capacity, thus increasing the risk that the entire network could be interrupted. Furthermore, the Eskom Distribution network is increasing rapidly due to vigorous electrification plans. Eskom has identified the Patensie, Humansdorp and Kareedouw areas of the Eastern Cape as locations where strengthening of the network is required to meet current and future demands for electricity. Eskom proposes to construct infrastructure to strengthen and upgrade the network in the Patensie, Humansdorp and Kareedouw areas. The objective of the proposed installation of 132kV distribution lines is thus to increase the reserve capacity on the existing lines, while providing spare capacity for the future electricity needs of the growing local economy.

GIBB (Pty) Ltd was appointed by ESKOM Distribution Division to undertake an environmental authorisation process in terms of Section 24 of the National Environmental Management Act, (Act 107 of 1998) for the construction of electrical distribution infrastructure, which will comprise a new 132 kV overhead distribution line and a new substation at Dieprivier. Several listed activities will be triggered

PROPOSED ACTIVITIES

Study area. The study area where the proposed activity is to take place is located in close proximity to the small towns of Humansdorp and Hankey in the Kouga Local Municipality (Cacadu District Municipality), Eastern Cape. The Cacadu District is the largest producer of agricultural goods in the Eastern Cape. Agriculture is centred around the citrus industry with a smaller scale production of other products including vegetables and flowers.

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The proposed line would run between the town of Humansdorp and Patensie situated in the Kouga Local Municipality (LM). Kouga Local Municipality is located in the Eastern Cape and falls under the jurisdiction of the Cacadu District Municipality.

The new power line would run from the existing Melkhout substation to the proposed Patensie substation. Once the proposed infrastructure has been installed it may be necessary to decommission redundant infrastructure. Where decommissioning takes place it will be necessary for a thorough rehabilitation process to be undertaken to ensure protection of the receiving environment. The total length of the proposed power line amounts to approximately 28 km and will involve the construction of a 132 kV distribution line. The project elements are described further below.

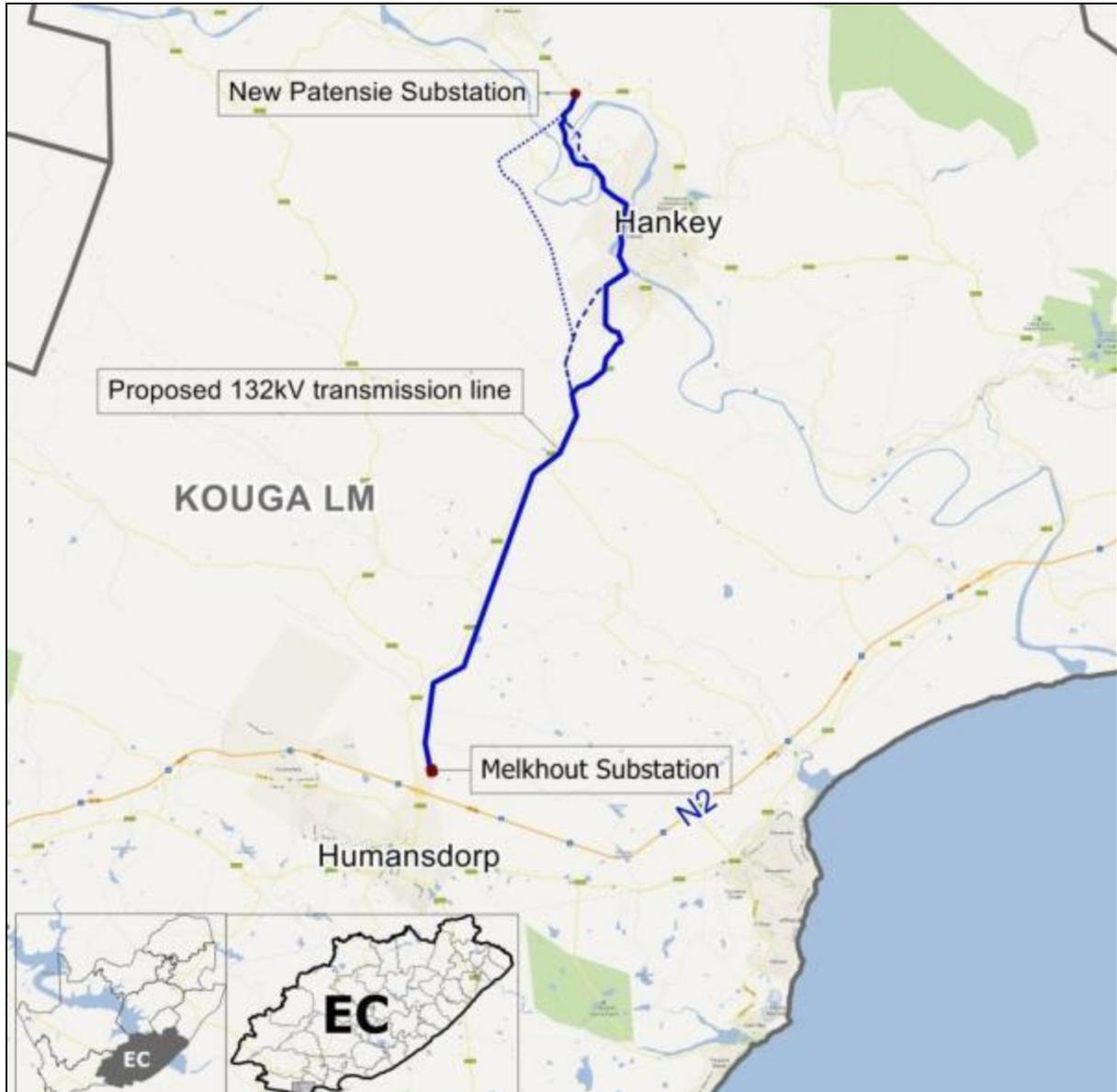


Figure 1: Location of the proposed 132 kV distribution line in the Kouga Local Municipality

Power lines. Servitudes are generally cleared of all wooded species and any other protruding alien vegetation so as to reduce fire risks, to ensure access for maintenance purposes and to prevent shortages with vegetation. Tower steel is usually delivered on a 24-ton truck to their required position in the field, terrain permitting, else on smaller vehicles, which is used to deliver steel in rough terrain. In areas where the vehicles are not able to drive, other means of delivery of tower structures/steel and other infrastructure will be employed, e.g. the use of

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a helicopter. An 8-ton crane truck is generally used to erect the structures. A foundation of 1.5 x 1.5 x 2.5 m will be required for each supporting and load-bearing structure. Although the proposed power lines follow existing servitudes, power lines and roads, access roads for minor vehicles may be created during the construction phase and during periodic maintenance. A map indicating the existing network of Eskom power lines and roads is included in Appendix A.

Sub-station. The existing Melkhout substation will be upgraded to allow the tie in of the proposed distribution lines. The capacity of the existing Melkhout substation is 120 MVA, and this capacity will not be increased. At Patensie a new substation with a capacity of 2 x 20 MVA will be constructed and will accommodate 132 and 22 kV distribution lines. See Appendix C for facility illustrations of the proposed new Patensie Substation.

132 kV Towers. The size of the foundation footprint depends on the type of structure to be used and ranges from 0,36 m³ to 2,35 m³, with the larger footprint associated with the angle strain structures. The average span between two towers would be approximately 200 m, but can vary between 250 m and 375 m depending on the ground profile and the terrain to be spanned. The guyed suspension structure is typically used along the straight sections of the power line, while the self-supporting angle strain structures are used where there is a bend in the power line alignment. The tower structures to be installed in this project include the 273 guyed-lattice series (Figure 2), 255 self-supporting series (Figure 3), and 248 self-supporting series (terminal position) (Figure 4) and self supporting steel monopole towers (Figure 5).

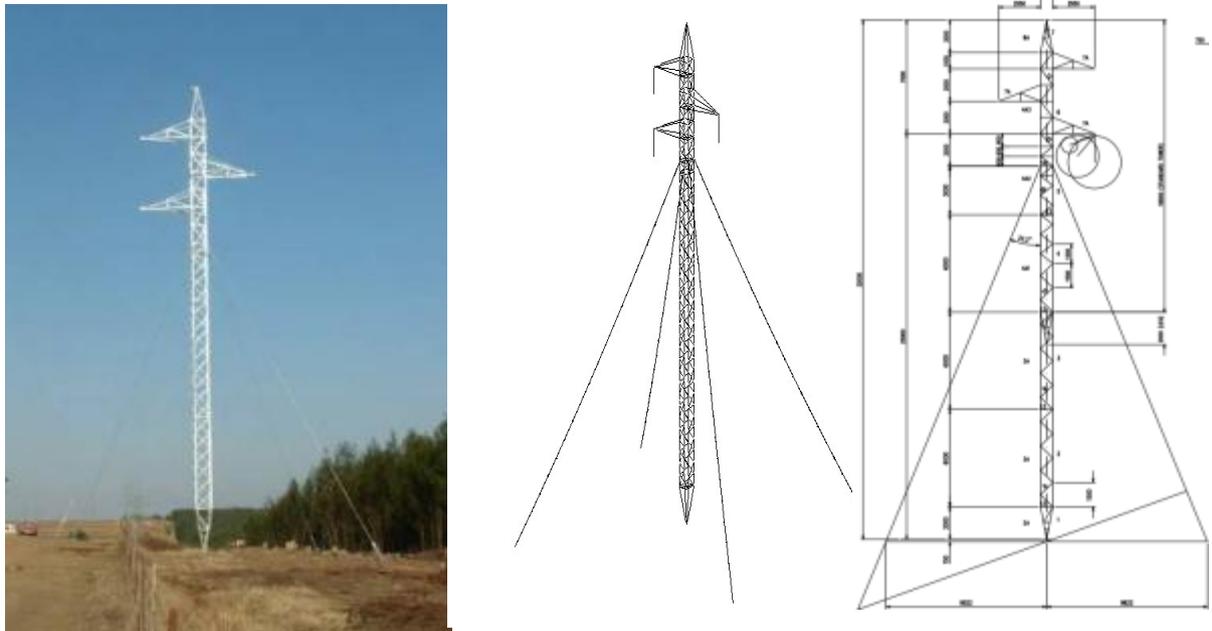


Figure 2: Guyed lattice tower 273A (left), sketch of 273 series guyed lattice tower (centre), guyed lattice tower 273C (right)

The guyed lattice tower capability (as seen in Figure 2) includes a 440 m windspan and 660 m weightspan from tower to tower using kingbird conductors (wires between towers) and 7/3.35 earthwire (one of the wires between towers). The lattice mast is aesthetically pleasing and enhanced line performance due to multi-path earthing. Advantages of the guyed lattice mast are that it can use screw anchors as foundations for stay assembly with a steel-concrete interface (i.e anchors for the lattice stays are set in a cement/concrete foundation for support). Necking (deformation or thinning of steel under stress) normally occurs at steel-ground interface (silted foundations). Structure performance is good under impulse loading conditions and foundations are easily adaptable to different soil types. The 273C and 273E towers look similar to the 273A tower as they are all guyed towers. The bird specialist has concluded that the lattice and pole structures to be used in this project are safe for the bird populations in the area (See detailed specialist report in Appendix D1).



Figure 3: Self-supporting strain tower (255D)

The rest of the 255 series structures are all similar to the 255D structure in Figure 3.

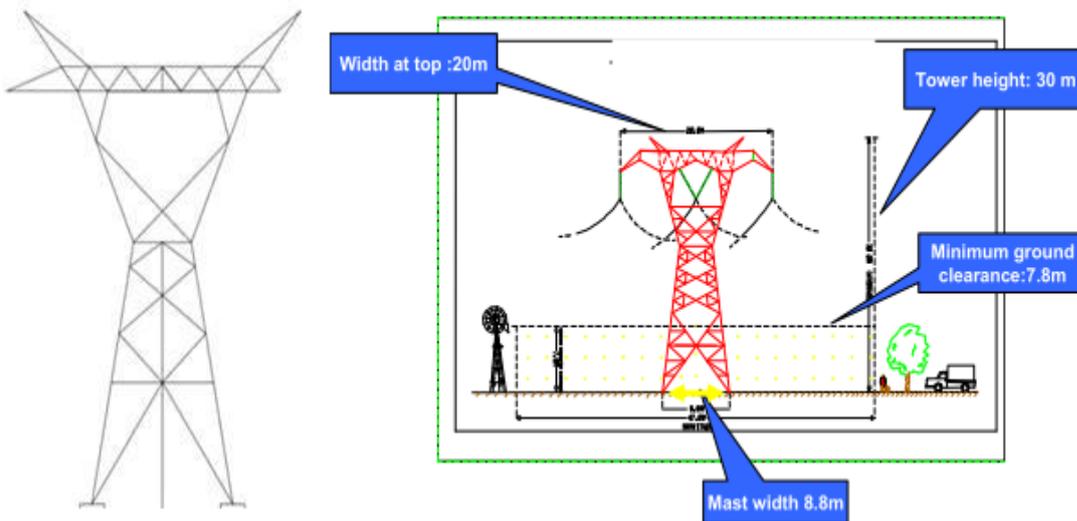


Figure 4: Self-supporting terminal tower (248C)

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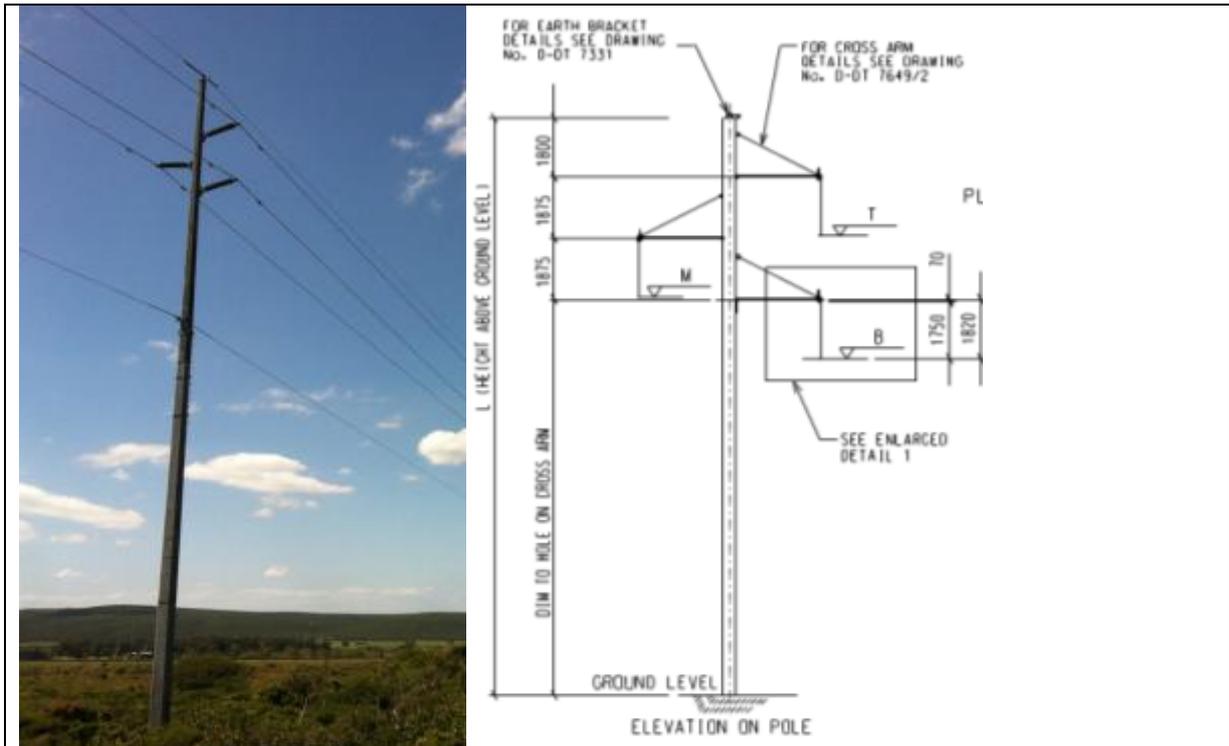


Figure 5: Self supporting steel monopole structure

Tower illustrations of the tower types to be used are provided in Appendix C.

Servitude Requirements and Clearances. The servitude width for a 132 kV distribution line is 31 m (15.5 m on either side of the centre line of the power line). The minimum vertical clearance to buildings, poles and structures not forming part of the power line must be 3.8 m, while the minimum vertical clearance between the conductors and the ground is 6.7 m. The minimum distance of a 132 kV distribution line running parallel to proclaimed public roads is 95 m from the centreline of the distribution line servitude to the centreline of the road servitude. The minimum distance between any part of a tree or shrub and any bare phase conductor of a 132 kV distribution line must be 3.8 m to allow for the possible lateral movement of this vegetation that could be a potential hazard for distribution lines that are operational and energised.

Should the preferred distribution line corridor receive environmental authorization from DEA, and following on from successful negotiations with landowners, the final delineation of the centreline for the distribution line and co-ordinates of each bend in the line will be determined. Optimal tower sizes and positions will be identified and verified through comprehensive ground survey of the preferred route and these positions will be reflected, and appropriate management actions incorporated into the continuously and periodically updated Environmental Management Programme (EMPr).

Trees and large shrubs that will cause clearance issues will be trimmed or cleared, while a narrow footpath for workers will be cleared down the centre of the distribution line servitude for stringing purposes. If any tree or shrub in other areas will interfere with the operation and/or reliability of the distribution line it will be trimmed or completely cleared. In areas where distribution lines cross existing orchards or agricultural lands in use the footprint of the structures will be minimised and full scale clearing of the servitude avoided to allow continued use of the arable land, unless otherwise negotiated with the affected farmer/s. The clearing of vegetation will take place, with the aid of a surveyor, along approved profiles and in accordance with the approved EMPr and minimum standards to be used for vegetation clearing for the construction of the proposed new 132 kV distribution lines as listed in Table 3 (Eskom, 2000).

Foundations. The type of terrain encountered, as well as the underlying geotechnical conditions determines the choice of foundation. The actual size and type of foundation to be installed will depend on the soil bearing capacity (actual sub-soil conditions).

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Strain structures require more extensive foundations for support than in-line suspension structures, which contribute to the cost of the construction of the line. Foundations will be mechanically excavated where access to the site is readily available. The same applies to the pouring of concrete required for the setting of the foundations. In areas where access to the structure position prohibits the use of concrete mixing trucks, uphill pumping or gravity feeding of concrete up to distances of 200 m will be implemented. Prior to erecting the structures and infilling of the foundations, the excavated foundations will be covered/fenced-off in order to safeguard unsuspecting animals and people from injury. All foundations are back-filled, stabilised through compaction, and capped with concrete at ground level.

Insulators. Composite insulators have a glass-fibre core with silicon sheds for insulation and are used to connect the conductors to the towers. Glass and porcelain have been used to connect the conductors for many years, and is the most common. These products are, however, heavy and susceptible to breakage by vandals, as well as contamination by pollution. Composite insulators are lightweight and resistant to both vandalism and pollution. Composite (Long rod type) insulators with silicone based weathershed material will be used.

Access. Access is required during both the construction and operation/maintenance phases of lines 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. See Appendix A for map of distribution lines

Line clearance. 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 summarizes some of the key clearances relevant to the proposed 132 kV power line.

Table 1. Clearance specifications (Eskom, 2007).

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

Ongoing Maintenance. During the life span of the power lines, which is approximately 25 years, ongoing maintenance is required to be performed from time to time. Eskom maintenance staff and contractors employed by Eskom will undertake the maintenance works as required.

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Table 2: Minimum standards to be used for vegetation clearing for the construction of a new 132 kV distribution line

Item	Standard	Follow up
Centre line of the proposed Sub-transmission line	Clear to a maximum (depending on tower type and voltage) of an 8 m wide strip of all vegetation along the centreline. Vegetation to be cut within 100 mm of the ground. Treat stumps with herbicide.	Re-growth shall be cut within 100 mm of the ground and treated with herbicide, as necessary.
Inaccessible valleys (trace line)	Clear a 1 m strip for access by foot only, for the pulling of a pilot wire by hand.	Vegetation not to be disturbed after initial clearing – vegetation to be allowed to re-grow.
Access / service roads	Clear a maximum (depending on tower type) 5 m wide strip for vehicle access within the maximum 8 m width, including de-stumping / cutting stumps to ground level, treating with a herbicide and re-compaction of soil.	Re-growth to be cut at ground level and treated with herbicide as necessary.
Proposed tower position and proposed support / stay wire position	Clear all vegetation within proposed tower position and within a maximum (depending on tower type) radius of 5 m around the position,	Re-growth to be cut at ground level and treated with herbicide as necessary.
	including de-stumping / cutting stumps to ground level, treating with a herbicide and re-compaction of soil. Allow controlled agricultural practices, where feasible.	
Indigenous vegetation within servitude area (outside of maximum 8 m strip)	Area outside of the maximum 8 m strip and within the servitude area, selective trimming or cutting down of those identified plants posing a threat to the integrity of the proposed Sub-transmission line.	Selective trimming
Alien species within servitude area (outside of maximum 8 m strip)	Area outside of the maximum 8 m strip and within the servitude area, remove all vegetation within servitude area and treat with appropriate herbicide.	Cut and treat with appropriate herbicide.

Construction Process for distribution lines and substations. Power lines are constructed in the following simplified sequence:

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

Substation are constructed in the following simplified sequence:

- Step 1: Survey of the site;
- Step 2: EIA and site-specific EMP;R;
- Step 3: Design of substation;
- Step 4: Issuing of tenders and award of contract;
- Step 5: Establishment of construction camp, vegetation clearance and construction of access roads (where required);
- Step 6: Construction of terrace and foundations;
- Step 7: Assembly and erection of equipment;
- Step 8: Connection of conductors to equipment;
- Step 9: Rehabilitation of any disturbed areas and protection of erosion sensitive areas;
- Step 10: Testing and commissioning;
- Step 11: Continued maintenance.

Stringing of Conductors. A pilot cable is used to string the conductors between towers. This can be undertaken mechanically (see Figure 6) or by hand. The line is strung in sections (from bend to bend). Cable drums are placed at 5 km intervals (depending on the length of the conductor) during this stringing process. In order to minimise any potential negative impacts on the surrounding area, these cable drums should be placed within the servitude.



Figure 6: Mechanical stringing of conductors

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Telecommunications Mast. A communications mast may be required at the proposed substation sites. A 30 m to 50 m lattice microwave telecommunication mast will be constructed within the substation yard, as this forms an integral part of the sub-station. The mast is required to receive communication from surrounding towers. Full functioning of the substation will be reliant on these telecommunications masts, as its exclusion may result in the limited electrification of the surrounding areas.

Construction Period. An estimated construction period of 9 months is envisaged. The construction period will however depend on the season and environmental conditions in which construction is undertaken. Where monopoles is proposed construction is estimated be faster as monopole structures are simply lifted into position by a crane, while lattice structures have to be assembled on site.

Job opportunities. Although the number of staff employed (skilled and unskilled) depends on the contractor, teams are generally made up according to the following table. Unskilled labour is usually trained by the contractors and is usually sourced from local communities.

Table 3: Likely Staffing Structure for the Construction of the Proposed Works

OPERATION	SKILLED	UNSKILLED
Bush Clearing	20%	80%
Gate installation	20%	80%
Excavations	80%	20%
Stay installation	80%	20%
Tower installation	50%	50%
Stringing	80%	20%
Excavation	20%	80%
Steel erection	50%	50%
Electrical Work	90%	10%

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
Example: GN R.544 Item 11(3): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river
GN R544 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 kilovolts.	<i>The proposed activities include the construction of a 132kV distribution line between Melkhout and Patensie, and the construction of a new substation at Patensie</i>
GN R544 Item 11(iii) The construction of (iii) bridges, where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line	<i>Routing of the distribution lines close to the R330 or close to watercourses is likely to require construction of a bridge/s across a watercourse.</i>

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GN R544 Item 18 The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from (i) a watercourse.	<i>The construction of access road across a water course may be required where the access to a tower structure cannot be achieved by another means.</i>
GN R546 Item 3(a), (b) (ii) The construction of masts or towers of any material or type used for telecommunication broadcasting or radio transmission purposes where the mast (a) is to be placed on a site not previously used for this purpose, and (b) will exceed 15 metres in height, but excluding attachments to existing buildings and masts on rooftops. (a) In the Eastern Cape province (ii) outside urban areas.	<i>Masts for telecommunication purposes may be constructed at the existing or proposed sub-stations.</i>
GN R546 Item 12 (b) The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, (b) within critical biodiversity areas identified in bioregional plans.	<i>Clearing of vegetation along each route within the servitude will likely occur, which will impact on some of the CBAs occurring along the route as identified in the Eastern Cape Biodiversity Conservation Plan (ECBCP)</i>
GN R546 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, (exclusion clauses not applicable): c) In the eastern Cape (ii) outside urban areas.	<i>Clearing of vegetation along each route within the servitude will likely occur, which will impact on some of the CBAs occurring along the route as identified in the Eastern Cape Biodiversity Conservation Plan (ECBCP).</i>

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.

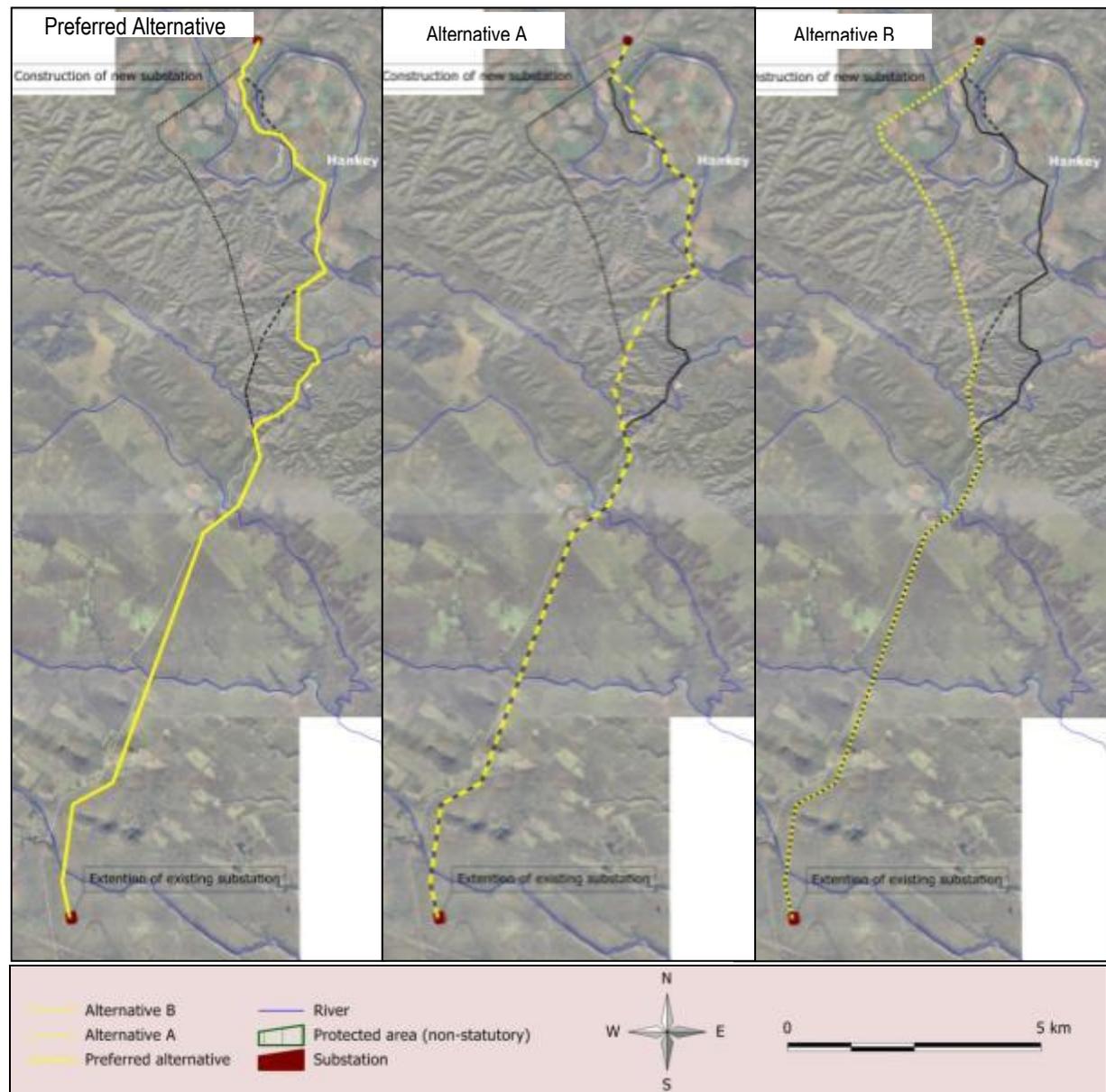
The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional 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.

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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.

Description of alternatives

The preferred routing option indicated below was identified during extensive site and routing investigations undertaken by Eskom representatives, appointed land surveyors, designing engineers and Environmental Assessment Practitioner. Topography, hydrology, land ownership and servitude negotiation, line maintainance, line constructability, access, economic, social and environmental aspects were considered during the viability assessment of each routing alternative. Based on this assessment the Preferred Alternative was identified as the most viable routing option. Assessment of Alternatives A and B indicated that land ownership and the unwillingness of land owners to entertain line routing options across their properties was the major influencing factors leading to elimination of these alternatives. Advantages and disadvantages of each of the alternatives are presented in the Table 4 below.



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Table 4. Advantages and disadvantages of the identified routing options.

Preferred Alternative	Alternative A	Alternative B
All land owners have agreed to allow construction of power lines across their property.	Some land owners have refused to allow construction of power lines across their property.	Some land owners have refused to allow construction of power lines across their property.
This routing option will be most expensive to construct based on construction cost per km (approx. 28.5km)	This alternative will be less expensive compared to the Preferred Alternative to construct based on construction cost per km (approx. 27.6km)	This alternative will be less expensive compared to the Preferred Alternative to construct based on construction cost per km (approx. 27.6km)
This routing option will be the most expensive to construct based on the need for more strain structures (approx. 35 turn angles), and more expensive foundations per structure	This alternative will be less expensive compared to the Preferred Alternative to construct based on the need for less strain structures (approx. 21 turn angles)	This alternative will be least expensive compared to the Preferred Alternative to construct based on the need for strain structures (approx. 14 turn angles)
Access and maintenance of this routing option will be less difficult/expensive as the routing is located closer to the main road for most of the route.	Access and maintenance of this alternative will be more difficult/expensive as the routing is located further away from the main road and crosses a mountainous region.	Access and maintenance of this alternative will be more difficult/expensive as the routing is located further away from the main road and crosses a mountainous region.
Visual impact of this routing option in relation to proximity to the R330 road and Hankey community will be greatest for this option.	Visual impact of this alternative in relation to proximity to the R330 road and Hankey community will be less pronounced than expected for Preferred Alternative	Visual impact of this alternative in relation to proximity to the R330 road and Hankey community will be less pronounced than expected for Preferred Alternative.
Avifaunal impacts of this route will be less pronounced than the two alternatives	Avifaunal impacts of this route will be more pronounced than the preferred route due to closer proximity to the IBA and routing across mountainous regions	Avifaunal impacts of this route will be more pronounced than the preferred route due to closer proximity to the IBA and routing across mountainous regions
<p>Conclusion:</p> <p>The Preferred Alternative is clearly the most expensive option to construct and maintain, however this option has the lowest impact on avifauna, and all land owners along the route has agreed to allow erection of the power lines across their properties. Land owner requirements have proven the most telling factor in concluding that this option is the preferred option.</p>	<p>Conclusion:</p> <p>Although less expensive to construct, maintenance will prove more difficult due to a section of the line crossing mountainous terrain. Furthermore, some land owners, especially owners of the game farms have rejected Eskom's proposal to cross their property. Land owner requirements have proven the most telling factor in concluding that this option is NOT preferred, and resultantly the option has been eliminated.</p>	<p>Conclusion:</p> <p>From a construction cost perspective, this alternative proves to be favoured, however construction and maintenance may prove to be problematic as a large section of the line crosses mountainous terrain. Some land owners, especially owners of the game farms have rejected Eskom's proposal to cross their property. Land owner requirements have proven the most telling factor in concluding that this option is NOT preferred, and resultantly the</p>

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		option has been eliminated.
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a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The activity and alternatives are linear activities. See below.		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative:

Alternative S1 (Preferred Alternative)

- Starting point of the activity (Melkhout SS)
- Middle/Additional point of the activity
- End point of the activity (new Patensie SS)

Latitude (S):

Longitude (E):

34°00'01.620"	24°47'04.320"
33°53'12.960"	24°50'24.540"
33°47'06.120"	24°50'24.060"

Alternative S2 (Alternative A)

- Starting point of the activity (Melkhout SS)
- Middle/Additional point of the activity
- End point of the activity (new Patensie SS)

34°00'01.620"	24°47'04.320"
33°53'49.320"	24°50'06.780"
33°47'06.120"	24°50'24.060"

Alternative S3 (Alternative B)

- Starting point of the activity (Melkhout SS)
- Middle/Additional point of the activity
- End point of the activity (new Patensie SS)

34°00'01.620"	24°47'04.320"
33°53'49.320"	24°50'06.780"
33°47'06.120"	24°50'24.060"

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment. **A table with coordinates for each alternative every 250 m is attached in Appendix A2.**

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.

BASIC ASSESSMENT REPORT

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The design of substations is standard, and according to engineering best practices. No layout alternatives considered.		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Alternative 1 (preferred alternative)
Alternative technologies have not been considered as the technology to be used is already considered as the most appropriate technology, and in some cases has been specifically designed for the existing environmental conditions and terrain, as specified by standard ESKOM specifications and best international practice. The tower structures proposed for this project have been selected to reduce visual impacts, impact on cultivated areas and impact on avifauna.
Alternative 2
N/A
Alternative 3
N/A

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

Alternative 1 (preferred alternative)		
No other alternatives were considered.		
Alternative 2		
Alternative 3		

BASIC ASSESSMENT REPORT

e) No-go alternative

The no go alternative in the context of this project implies that the power line and substation would not be constructed and the Melkhout substation extension would not be completed. If the project does not proceed the negative impacts such as risk of collisions of birds, clearing of vegetation and soil erosion would be avoided, however if the project does not commence the region would be negatively affected by an inadequate and unreliable electricity supply, which would inhibit future developments in the area. The need to for stable and reliable power supply to meet current and future demand will likely outweigh the potential impacts to the surrounding environment, which is expected to be of low to medium significance, at best, and can be proactively mitigated to an acceptable level. THE NO-GO ALTERNATIVE IS THEREFORE NOT RECOMMENDED.

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 A1¹
 Alternative A2 (if any)
 Alternative A3 (if any)

Size of the activity:

	N/A
	N/A
	N/A

or, for linear activities:

Alternative:

Alternative A1 (Preferred Alternative)
 Alternative A2 (Alternative A) (if any)
 Alternative A3 (Alternative B) (if any)

Length of the activity:

	28,511 m
	27,522 m
	27,599 m

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

Alternative:

Alternative A1 (Preferred Alternative)
 Alternative A2 (Alternative A) (if any)
 Alternative A3 (Alternative B) (if any)

Size of the site/servitude:

	883,841 m ²
	853,182 m ²
	855,569 m ²

4. SITE ACCESS

Does ready access to the site exist?

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

YES X	NO
m	

Existing roads and tracks to each of the tower structures and substations will be used during construction and maintenance.

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

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Describe the type of access road planned:

Ready access to the Melkhout substation exists. Access to the new Patensie substation will be possible using the R330, a short section of road will need to be constructed to allow access to the new substation, which will contain infrastructure that will support the distribution of higher energy voltage. Access to the power line route will be from existing rural access roads and tracks where these exist. Where no access route exists in close proximity to the proposed power line route it will be necessary to construct access tracks. These tracks will as far as possible follow the power line servitude and not entail construction of a formal road/s. Detailed design of new tracks or roads have not yet been conducted.

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

5. LOCALITY MAP

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

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates 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).

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.

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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.

8. SITE PHOTOGRAPHS

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

9. FACILITY ILLUSTRATION

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

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES X	NO	Please explain
The power line and structures will be located in a servitude acquired by Eskom for the specific purpose.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES X	NO	Please explain
The Eastern Cape Provincial Spatial Development Plan recognises that the electricity supply is under stress in the province and large development projects are affected by the electricity limitations.			
(b) Urban edge / Edge of Built environment for the area	YES X	NO	Please explain
The powerline will span the urban and rural area within existing or acquired servitudes specifically for this purpose between the earmarked substations.			

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<p>(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?).</p>	YES X	NO	Please explain
<p>One of the objectives addressing service delivery in the Kouga IDP aims to ensure that the electricity service is maintained and improved to enhance the quality of life for all communities. The Cacadu District Municipality SDF states that approximately 4,000 households in the Kouga LM do not have access to electricity as the main source of energy. The SDP recognises that a significant capital outlay is required to upgrade both the urban and rural electricity network.</p>			
<p>(d) Approved Structure Plan of the Municipality</p>	YES X	NO	Please explain
<p>The Kouga Coast Sub-Regional Structure Plan was replaced by the recommendations of the Greater St Francis Bay Spatial Development Plan, which recognises the need for housing development in the region. This includes the provision of services such as electricity supply.</p>			
<p>(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?)</p>	YES X	NO	Please explain
<p>The proposed power lines will run through some CBA areas. The tower structures will however have a minimal impact on the vegetation and all impacts have been rated as low by a vegetation specialist given that the mitigation measures are implemented successfully.</p>			
<p>(f) Any other Plans (e.g. Guide Plan)</p>	YES	NO	Please explain
<p>No other plans applicable.</p>			
<p>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)?</p>	YES	NO	Please explain
<p>One of the projects in the Cacadu DM IDP is to finalise and implement a program to ensure universal access to electricity, water and sanitation by 2014. If this project commences it will increase the electricity capacity for the Humansdorp, Patensie and Kareedouw regions. In 2006 the Kouga Municipality set an objective to provide access to reliable electricity to 500 formal households annually (Kouga IDP).</p>			
<p>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.)</p>	YES X	NO	Please explain
<p>Upgrade of electricity supply has been highlighted as a key issue in both the Cacadu DM IDP and the Kouga LMs IDPs. Increasing the capacity of the electrical infrastructure will provide a stable supply and encourage development in areas which have previously been limited due to the inadequate electricity supply.</p>			
<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>	YES X	NO	Please explain
<p>No additional services need to be created to cater for the new electricity infrastructure.</p>			

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<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>	YES X	NO	Please explain
<p>Upgrade of electricity supply has been highlighted as a key issue in both the Cacadu DM IDP and Kouga LMs IDPs, therefore they are mandated to prioritise the upgrade of the electricity supply network. No additional comment is thus required.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	YES X	NO	Please explain
<p>The National Development Plan identifies electricity transmission and distribution to all as one of the seventeen SIPs, especially the provision and upgrade of electricity supply in the Eastern Cape.</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	YES X	NO	Please explain
<p>There are already existing power lines along the proposed route connecting the towns of Patensie, Humansdorp and Kareedouw. New power lines will thus be erected in areas where power lines have already been integrated into the natural environment and structure design has been optimised to minimise visual intrusion and the cumulative effect of additional power lines.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	YES X	NO X	Please explain
<p>The proposed power lines runs mostly exclusively across non-arable farmland with minimal environmental impact. Given the national importance of strengthening the power supply grid in the Eastern Cape, the benefits of running the power lines over farm lands that is unsuitable for crop farming outweigh the potential loss of a minor amount of natural vegetation.</p>			
<p>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</p>	YES X	NO	Please explain
<p>The negative impacts for the development are all of low significance following mitigation measures, and the main benefit of the development, improved reliability of electricity supply and increase supply to region resulting in economic growth is of high significance. The development will also create temporary jobs during the construction period which is of low positive significance.</p>			
<p>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</p>	YES	NO X	Please explain
<p>The upgrade of the electricity grid is not driven by profit gains but to ensure service delivery to all communities in the region. Therefore it can will not set a precedent.</p>			
<p>12. Will any person's rights be negatively affected by the proposed activity/ies?</p>	YES	NO X	Please explain
<p>No juristic or natural person's right will be adversely negatively affected.</p>			
<p>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</p>	YES	NO X	Please explain
<p>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPs)?</p>	YES X	NO	Please explain
<p>SIP 10. Electricity transmission and distribution to all</p>			

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15. What will the benefits be to society in general and to the local communities?	Please explain
The potential benefit of the proposed power line and substation to the Eastern Cape lies in the stimulation of the local economy through the supply of a reliable electricity supply, which will increasingly benefit the provision of services. Further, upgrade of the existing power supply will ensure provision of electricity to new commercial, housing and low-cost housing developments.	
16. Any other need and desirability considerations related to the proposed activity?	Please explain
Improving network reliability may furthermore decrease the number of residents within the Eastern Cape who are still reliant on domestic fires, which in turn negatively impact the environment through uncontrolled harvesting of woodlands and air quality, and will improve quality of line notably.	
17. How does the project fit into the National Development Plan for 2030?	Please explain
The National Development Plan for 2030 has a vision that by 2030 South Africa will have an energy sector that promotes economic growth and development through adequate investments in energy infrastructure and the provision of quality energy services.	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
The proposed development has been adequately considered by trained and competent Environmental Assessment Practitioners and identified specialist, and all potential impacts that may have a significant impact on the receiving environment have been considered and mitigated to acceptable levels as required by the NEMA 2010 EIA regulations. 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. Further all Interested and Affected Parties were given ample time to review and comment on all documents and reports.	
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.	
<p>The primary objective of the project is to provide a stable electricity supply to the Humansdorp, Patensie and Kareedouw regions of the Eastern Cape. 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.</p> <p>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 was also undertaken as part of the basic assessment process and recommendations made by the heritage specialist have been included in the EMPr. The Environmental Basic Assessment was advertised and members of the public were given the opportunity to register as an I&AP as described in Section C: public participation and the issues and responses report (Appendix E).</p> <p>Most of the negative impacts associated with the project will occur during the construction phase. Where negative impacts are unavoidable they will be mitigate according to stipulations in the EMPr. Recommendations and mitigations presented in the EMPr will reduce the disturbance to ecosystems and the loss of biodiversity. Where negative impacts are unavoidable, strict management and rehabilitation is recommended to minimise the potential negative impacts. Certain activities such as the clearing of alien vegetation from the servitudes will improve the biodiversity of the site. 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.</p> <p>The impacts of the proposed powerline on wetlands will be reduced by micrositing of towers to avoid placing them in wetland areas. The workers will be given environmental health and safety training prior to commencing any work. Daily 'tool box talks' will be used to inform workers of any specific environmental issues or health and safety concerns relating to the activities or location. The cost to of rehabilitation required due to pollution</p>	

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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 paved the way for the protection of the natural environment and heritage resources through the recognition of the rights to a safe and healthy environment.	South African Government	1996
National Environmental Management Act (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.	DEA	1998
Environmental Impact Assessment Regulations (Government Notice No. R. 543, 544 and 546)	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.	DEA	2010
National Heritage Resources Act (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.	SAHRA	1999
National Water Act (36 of 1998)	This Act provides for the protection and management 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. This WULA is made as the need for construction of a bridge over a watercourse has been identified, and the construction of tower structures within 500m of a watercourse may result.	DWA	1998
Conservation of Agricultural Resources Act (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	DoA	1983

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	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.		
Occupational Health and Safety Act (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.	Department of Labour	1993
National Environmental Management: Biodiversity Act (10 of 2004)	The Biodiversity Act provides for the management and protection of the country's biodiversity within the framework established by NEMA. It provides for the protection of species and ecosystems in need of protection, sustainable use of indigenous biological resources, and equity in bio-prospecting. Some Critical Biodiversity Areas and vulnerable and endangered ecosystems have been identified by the vegetation specialist in the study site.	DEA	2004
National Environmental Management: Protected Areas 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.	DEA	2003
Electricity Regulations Act (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.	NERSA	2006
National Energy Act (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

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	capacity such as in the Kareedouw-Humansdorp- Patensie area.		
Kouga LM Integrated Development Plan	The IDP identifies the need to upgrade and increase the electricity grid in the local municipality, thus supports the proposed installation of distribution line.	Kouga LM	2007-2012
Cacadu DM Integrated Development Plan	The IDP identifies the need to upgrade and increase the electricity grid in the district municipality thus supports the proposed installation of distribution line.	Cacadu DM	2007-2012
Nature and Environmental Conservation Ordinance (No. 19 of 1974)	Regulates various nature and environmental conservation aspects such as control animals, game and pollution. This ordinance regulates and prohibits the removal or killing of animal or game on site and regulates pollution activities on site.	DEDEAT	1974

Waste, effluent, emission and noise management

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?
If YES, what estimated quantity will be produced per month?

YES X	NO
Approx 5 m ³	

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

All solid waste which is not reusable will be collected at a central location and will be stored temporarily until removed to a recognised landfill site
--

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

Municipal landfill site

Will the activity produce solid waste during its operational phase?
If YES, what estimated quantity will be produced per month?
How will the solid waste be disposed of (describe)?

YES	NO X
m ³	

N/A

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

Hankey Registered and Permitted Landfill site (G:S:B-)
--

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

All solid waste will be disposed off at a landfill site

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

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

YES	NO X
------------	-------------

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

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

YES	NO X
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If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

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

YES	NO X
m ³	
YES	NO X

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

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

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

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

YES	NO X
-----	------

If YES, provide the particulars of the facility:

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

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

N/A

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	NO X
YES	NO X

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

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	NO X
-----	------

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

YES X	NO
YES	NO X

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

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:

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

WATER USE

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

Municipal X	Water board	Groundwater	River, stream, dam or lake	Other: water tanker X	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:

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.

litres	
YES	NO

ENERGY EFFICIENCY

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

N/A

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

N/A

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Section B: SITE/area/PROPERTY description

Important notes:

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

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

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

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

YES X	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	Eastern Cape
District Municipality	Cacadu District Municipality
Local Municipality	Kouga Local Municipality
Ward Number(s)	
Farm name and number	Refer to Appendix A3 for farm details
Portion number	Refer to Appendix A3 for farm details
SG Code	Refer to Appendix A3 for farm details

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. **List attached in Appendix A3**

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

Agriculture

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

Is a change of land-use or a consent use application required?

YES	NO X
-----	-------------

GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1 (Preferred Alternative):

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

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

Flat X	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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location in landscape

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

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

Groundwater, Soil and Geological stability of the site

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

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

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.

Groundcover

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

Natural veld - good condition^E X	Natural veld with scattered aliens^E X	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land X	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.

SURFACE WATER

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

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

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

Two perennial rivers are located within the project area. The Kromme River splits into the Diep River and the Geelhout River, which passes through the southern half of the project area. The Kromme is dammed at two points, namely the Churchill Dam and the Impofu Dam. The line falls within the Fish to Tsitsikamma Water Management Area. Rivers in the vicinity of the study site are classified as critically endangered, with the Kromme and Gamtoos being good examples of such degradation. The Northern section of the line crosses the Gamtoos river and the southern section intersects the Kromme river. A detailed study on the wetlands and drainage lines were undertaken by a wetland specialist and the full report are available in **Appendix D4**.

Land use character of surrounding area

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

Natural area X	Dam or reservoir	Polo fields
Low density residential X	Hospital/medical centre	Filling station ^H
Medium density residential X	School X	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential^A X	Church	Agriculture X
Retail commercial & warehousing	Old age home	River, stream or wetland X
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, koppie or ridge X
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 X (non-statutory, boundary of two game farms within 500m)
Military or police base/station/compound	Harbour	Graveyard X
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site X
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

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

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:

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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 X	NO
Core area of a protected area?	YES	NO X
Buffer area of a protected area?	YES	NO X
Planned expansion area of an existing protected area?	YES	NO X
Existing offset area associated with a previous Environmental Authorisation?	YES	NO X
Buffer area of the SKA?	YES	NO X

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

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 X	NO
Uncertain	

The Gamtoos Scenic Route, which has high local and regional significance for its aesthetic and economic (tourism) values.

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:

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GIBB Engineering and Science appointed eThembeni Cultural Heritage to undertake a Phase 1 Heritage Impact Assessment of a proposed distribution power line and substation site in the Eastern Cape Province, in terms of the National Environmental Management Act 107 of 1998 as amended, in compliance with Section 38 of the National Heritage Resources Act 25 of 1999, as amended.

eThembeni identified the Gamtoos Scenic Route and potential paleontological finds as heritage resources of value. The proposed electrical infrastructure is located along the Gamtoos Scenic Route, which has high local and regional significance for its aesthetic and economic (tourism) values. The unmanaged potential impact on this landscape is medium. As recommended mitigation towers should be located such that they do not interrupt skylines, and are not visible from scenic routes.

An informal burial ground is located on the north-west of the town of Hankey between bending towers MP50 and MP51. Graves are marked with stone piles and markers including wooden crosses, the burial ground is still visited by next-of kin. All human remains have high heritage significance due to their spiritual, social and cultural values. The unmanaged potential impact of the development on burial grounds is medium, suggested mitigation restricts development activity within 20 meters of identified burial grounds. Graves may not be altered in any way without permission from the next-of-kin and the relevant heritage and local government authorities.

The geology underlying the study area traverses a wide range of geological units. The Table Mountain Group sediments in the southwest are generally poorly fossiliferous, as are Jurassic conglomerates of the Enon Formation on the southwestern side of the Gamtoos River Valley. Early Cretaceous Kirkwood Formation beds near Patensie may contain important fossils of dinosaurs and other terrestrial vertebrates as well as petrified wood, while older alluvial sediments of the Gamtoos drainage systems are potentially fossil-bearing.

A heritage practitioner should complete a 'walk-through' of the final selected power line route and all other activity areas (access roads, construction camps, materials' storage areas, etc.) prior to the start of any construction activities and assess direct impacts on discrete resources such as traditional burial places, and archaeological and palaeontological sites. No monitoring was recommended.

Conclusion: eThembeni recommends that the development proceeds with the proposed heritage mitigation as outlined in the full report and with the Heritage Impact Assessment report being submitted to SAHRA in fulfilment of the requirements of the National Heritage Resources Act (Act 25 of 1999). Mitigation measures recommended by eThembeni have been incorporated into the EMP and should be implemented. The complete HIA is included in Appendix D for reference.

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

YES	NO X
YES	NO X

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

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

SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

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Kouga Local Municipality

The unemployment rate for Kouga LM has risen from 21.6 % in 1996 to 29.8 % in 2007 (Kouga LM, 2012), the unemployment rate for the Cacadu District Municipality for 2007 is lower at 24.7 % (STATS SA 2009).

The largest employment sectors for the Kouga LM are community, social and personal services (17.0 %), agriculture, forestry and fishing (13.5 %) and other government and social services (ECSECC).

Economic profile of local municipality:

The lack of energy resources within rural areas of South Africa is recognised as a major factor retarding socio-economic development. ECSECC (2009) states that approximately 72 % of households in the Kouga LM are electrified, however unreliable this supply may be.

Kouga Local Municipality

The 2008 Gross Value Added (GVA) figure for the Kouga LM was R3, 493 million. The largest contributors to the GVA for the Kouga Municipality are wholesale and retail trade (21.5 %), business services (15.6 %) and finance and insurance (11.4 %). The largest employment sectors for the Kouga LM are wholesale, retails and trade (16,3 %), business services (15.5 %) and food, beverage and tobacco (10.7 %) (ECSECC).

Level of education:

A high portion of the population of the Cacadu DM have received no education (13,1 %) compared to Kouga LM (10,1 %). A lower percentage of the population of the Kouga LM have an education compared to Koukamma LM. A total of 13.3 % of the population of Kouga LM have been educated up to grade 12 compared to 9,5 % in the Cacadu DM. A slightly higher percentage of the population of the Kouga LM have a diploma or degree 3.3 % compared to 3,1 % in the Cacadu DM.

b) Socio-economic value of the activity

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

R46 901 896

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

R unknown

Will the activity contribute to service infrastructure?

YES X	NO
--------------	----

Is the activity a public amenity?

YES X	NO
--------------	----

How many new employment opportunities will be created in the development and construction phase of the activity/ies?

Limited (2 or 3)

What is the expected value of the employment opportunities during the development and construction phase?

R unknown

What percentage of this will accrue to previously disadvantaged individuals?

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?

Unknown

What is the expected current value of the employment opportunities during the first 10 years?

R unknown

What percentage of this will accrue to previously disadvantaged individuals?

% unknown

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.

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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) X	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	Endangered and Critically Endangered vegetation types from SA vegetation map. High irreplaceability sites from Marxan analysis for the province.
				Vulnerable vegetation types from STEP. Expert-mapped areas.

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	15 %	Natural areas only exist largely along water courses and mountainous areas close to Hankie, and where CBAs have been identified.
Near Natural (includes areas with low to moderate level of alien invasive plants)	25 %	Most of the receiving environment the power lines straddle across is near natural farm lands (livestock grazing) with a low to moderate level of alien invasion.
Degraded (includes areas heavily invaded by alien plants)	10 %	Land degraded by access roads, overgrazing, etc.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	50 %	Cultivated land

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 X	Wetland (including rivers, depressions, channelled and unchannelled wetlands, flats, seeps pans, and artificial wetlands)	Estuary				Coastline	
	Endangered X							
	Vulnerable X							
	Least Threatened X							
		YES X	NO	UNSURE	YES	NO X	YES	NO X

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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)

Topography. The linear activity in the study area runs in a northerly to easterly direction. The topography in the area steepens from south to north, so the proposed line varies greatly with regards to altitude. The altitude of the preferred line varies from 20 to 390 m above sea level.

Geology and soils. The proposed line is to be located upon the Cape Supergroup and is expected to pass through the Sandstones and Shales of the Table Mountain Group. Because the dominant lithology is comprised of Sandstones and Shales the soils are generally highly erodible. Mismanagement of rivers and agricultural land can therefore expose the area to erosion degrade rivers to a moderate or high degree.

Local Climate. The Humansdorp area has a sub-tropical climate with rain falling throughout the year, with peaks in autumn and spring. Mean Annual Precipitation is between 400 and 650 mm and varies seasonally, annually and spatially. Dominant winds in the Humansdorp area are from the South West and can reach gale force strengths, especially during the winter months.

Biodiversity. Critical Biodiversity Areas (CBAs) are terrestrial and aquatic features in the landscape which are considered as critical in conserving biodiversity and maintaining ecosystem functioning. The majority of the proposed route crosses agricultural land however sections of line will cross CBA1 and CBA2 areas. Areas classified as CBA 2 are considered as untransformed and used for livestock grazing. These units are however of lower biodiversity value due to incorrect veld management practices such as overstocking and continuous grazing.

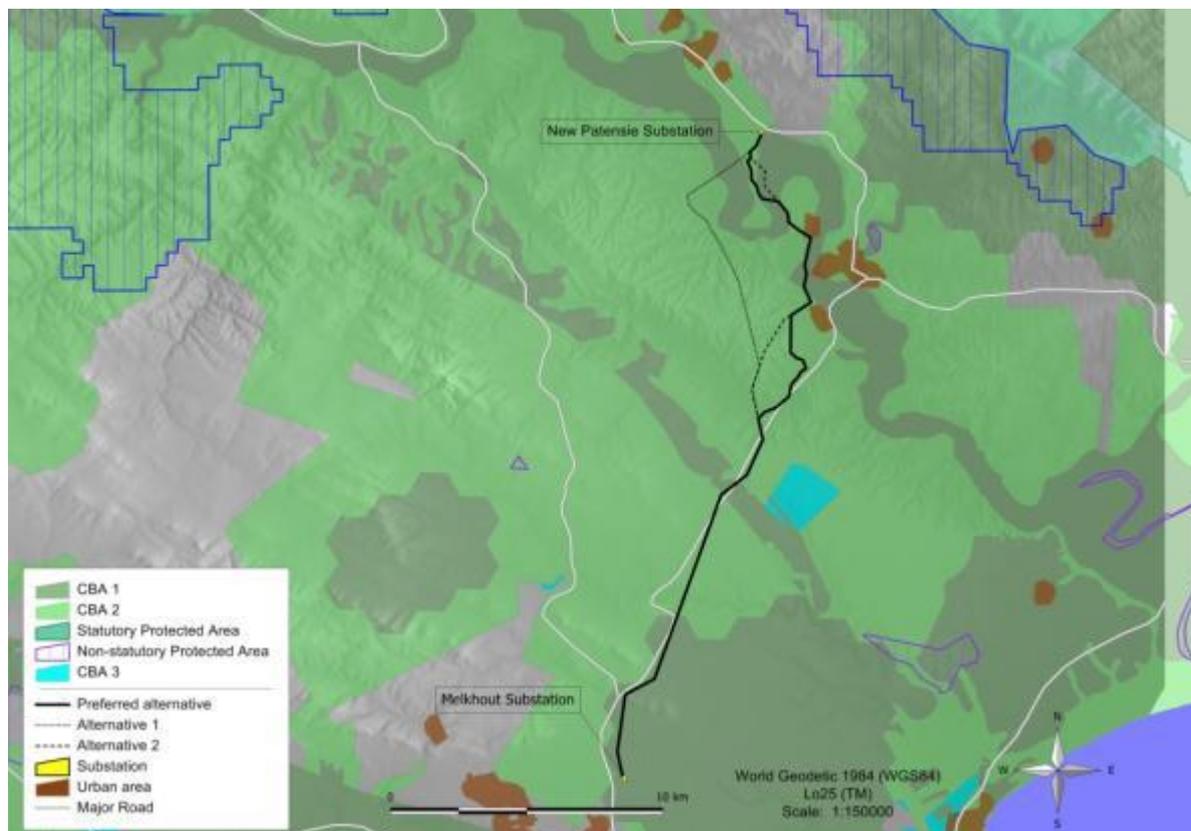


Figure 8. Biodiversity status and protected areas in the vicinity of the proposed distribution line.

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Vegetation. The proposed power line is situated within the Fynbos Biome. Fynbos can be easily recognised by the occurrence of the families Proteaceae (33 species), Ericacaceae, the heathers (52 species) and Restionaceae, the Cape reeds (28 species). All life in the Fynbos has evolved with, and is adapted to, fire. Grassy Fynbos, which dominates the Kouga LM, incorporates 2 endemic Proteaceae species. The Kouga Local Municipality is therefore deemed a centre of endemism. Dominant plant families include Daisy (Asteraceae), Protea (Proteaceae), Pea (Fabaceae) and Orchid (Orchidaceae). Renosterveld is characterised by the abundance of shrubs, especially one species, Renosterbos (*Elytropappus rhinocerotis*). Dominant plant families include Daisy Family (Asteraceae), the Pea Family (Fabaceae), the Gardenia Family (Rubiaceae), the Cocoa Family and the Thyme Family (Thymelaeaceae). Grasses are also abundant and it is believed that a lack of grasses is evidence of extensive grazing (Mucina and Rutherford, 2006).

Vegetation Impact Assessment

The presence of potential endangered vegetation in the study area prompted the need to conduct a vegetation impact study. GIBB appointed the vegetation specialist, Mr Jamie Pote to conduct a terrestrial ecological assessment. A summary of the findings of the assessment report is provided below.

Vegetation occurring within the study area includes Kouga Grassy Sandstone Fynbos (Least threatened), Humansdorp Shale Renosterveld (Endangered), Loeie Conglomerate Fynbos (Least threatened), Gamtoos thicket (Least threatened) and Albany Alluvial Vegetation (Endangered). Assessment of the habitat sensitivity indicate that areas scoring an overall LOW vulnerability include the portions of the site that are completely transformed or severely degraded, that have a low conservation status, or where there is very dense alien infestation. Loss of these areas will not significantly compromise the current conservation status of the vegetation unit at a regional level, nor is its loss likely to compromise the ecological functioning of surrounding areas. Areas scoring an overall MODERATE vulnerability include the intact portions of vegetation tend to have a moderate sensitivity score. Areas scoring an overall HIGH to VERY HIGH vulnerability include areas having a Critically Endangered or Endangered conservation status, or critical ecological process and critical biodiversity areas.

The proposed development is likely to have a number of impacts on the plants and plant communities within the site. The three key impacts are: (a) loss of habitat; (b) loss of species of special concern or SSC habitat and (c) reduction or changes to ecological processes/functioning. These can be further subdivided into sub-impacts as follows:

A. Issue 1: Direct loss of natural vegetation habitat as a result of vegetation clearing for servitude:

1. Direct loss of habitat;
2. Direct loss of rocky refugia;
3. Direct loss of thicket or forest vegetation in drainage lines
4. Direct loss of riparian vegetation along drainage lines
5. Direct loss of seep/wetland/seasonal pan vegetation

B. Issue 2: Direct loss of Species of Special Concern and associated habitat:

6. Loss of habitat for species of special concern;
7. Loss of Species of Special Concern

C. Issue 3: Ecological process changes:

8. Increased risk of alien invasion in drainage lines;
9. Clearing of alien invasives from within the servitude and drainage lines.
10. Disruptions to ecological processes as a result of habitat fragmentation

In summary, the overall the development of the project is predicted to result in a negative impact of VERY

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LOW to MEDIUM significance.

The following key conclusions are reached regarding impacts on flora:

- ✓ In general the servitude passes through degraded and transformed vegetation, with segments passing through areas of intact and near intact vegetation;
- ✓ Only some intact Albany Alluvial Vegetation is present within the Powerline servitude, which has a NBA (2011) conservation status of Critically Endangered.
- ✓ The proposed activity will NOT result in the clearing of greater than 300 m² of Endangered Albany Alluvial Vegetation or Humansdorp Shale Renosterveld and a permit in terms of section 57(1) of NEMBA is NOT required to carry out 'restricted activities' (including uprooting, damaging, destroying specimens) of listed threatened or protected species (as listed in terms of section 56 of NEMBA).
- ✓ As part of the EMPr, an suitably experienced and qualified botanical expert should be appointed to manage the identification and relocation of Species of Special Concern and management of vegetation clearing and subsequent revegetation and rehabilitation. A detailed EMPr should be compiled to address these issues before construction commences.
- ✓ It is recommended that individual screening and micro-siting are undertaken as part of the construction phase EMPr for the areas identified as having elevated sensitivities, including drainage lines and river crossings with intact Thicket and areas with intact Albany Alluvial Vegetation to micro-site the pylons in order to minimise impact.
- ✓ Some ephemeral/temporary wetlands, pans and dams occur within or adjacent to the powerline servitude. No powerline pylons should be sited within wetlands, pans and dams and a 32 m exclusion buffer should be placed around these features.
- ✓ Care should be taken that no power line pylons are sited in wetlands and temporary seasonal pans (32 m exclusion zone around these features). Should it be unavoidable, relevant permissions will need to be obtained from DWA.
- ✓ Power lines passing through riverine thicket/forest patches should be sited such that impacts to this vegetation is minimised.
- ✓ The substation and pylons must avoid any wetland areas (including seasonal wetlands, pans and seeps), other sensitive vegetation (thicket and forest), drainage lines and riparian vegetation along river banks. Should it be unavoidable, relevant permissions will need to be obtained from DWA.
- ✓ No powerline pylons should be placed within the 1:50 year flood line or on flood plains that may be susceptible to future flooding.

Should the proposed development commence all recommendations from the Vegetation Impact Assessment should be followed.

Wetland Impact Assessment

Scherman Colloty & Associates (SC&A) was appointed to conduct an assessment of the potential impacts on wetlands and waterbodies, posed by the construction of a 132kV transmission line between the Melkhout and Patensie substations, in the Kouga area of the Eastern Cape. SC&A conducted a Present Ecological State (PES) assessment of the aquatic systems within the alignment footprint as well as within a 500 m radius of the site.

Various water bodies, ranging from endorheic pans, with localised catchments, to rivers and streams dominated the regional and study area landscape. All of the observed aquatic features showed a degree of impact due to the present land use practices or local road infrastructure. Thus the Present Ecological State of the systems was considered to be C or D. The Ecological Importance and Sensitivity for most of these systems were also rated LOW due to the impacts existing within or adjacent to the wetland areas. It is important to note that all the wetland types found within the study area form an important network of corridors, and as indicated in regional biodiversity assessments. The river valleys and pans in particular are considered extremely valuable for bird and amphibian species, within the study area.

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Seven of the observed wetlands would have structures placed within 500 m of their boundaries and would thus require WULA for approximately 7 structures (towers). None of these structures are within the 50 m wetland buffer, and none occur within in any wetlands areas. It should be noted that the structures within the 50 and 500 m would seem to have little to no direct effect on the wetland areas as most are located within degraded or secondary terrestrial vegetation.

The key potential impacts that was assessed in this report include:

1. The potential loss of wetland or riparian habitat (physical destruction)
2. Loss of wetland habitat function, ecosystem services and associated biodiversity
3. Potential loss of Species of Special Concern
4. Habitat fragmentation
5. Sedimentation and erosion

The specialist has assessed and rated the significance of all identified impacts as LOW with and without mitigation. Further details regarding these impacts, mitigation measures and recommendations proposed can be viewed in the specialist's assessment report included in Appendix D4.

No structures are located directly within streams, drainage lines or riparian zones, or within the prescribed buffer areas. WULAs could be required should any access roads or clearing of servitudes be required within these areas.

Fauna. Caracal and leopard are the main predators in the area, although very rarely seen. Cape clawless otter, bushpig, aardvark and a host of other smaller mammals are still reasonably common despite being seldom seen. Four tortoise species, including the large leopard tortoise and tent tortoise, occur within the area. Twenty four snake species found in the area with 4 of these being South African endemics. Common species likely to be seen include Cape cobra, puffadder, *boomslang*, rhombic skaapstekker, Karoo and montane grass snakes and the brown water snake. Two of the 28 lizard species present in the area are newly discovered species (dwarf chameleon *Bradypodion* sp. and flat gecko *Afroedura* sp.). A further 7 species are Cape endemics and 7 others are South African endemics. Most of these occur in the mountainous parts. In summer the Nile monitor is commonly seen near water. The ubiquitous Southern rock agama is also common.

Avifauna. Species generally found in Fynbos and grassy plateaus includes Cape sugarbirds, Stone chats, Orange-throated longclaw, Greyling francolin, Black harrier, and even Cape rockjumper. Pale chanting goshawk, Karoo korhaan, Namaqua dove, Mountain chat, Pririt batis and Black-breasted snake eagle are also present in the area. The area boasts 25 number of raptor species, including the Little Sparrowhawk, Martial eagle, Crowned eagle and Black Sparrowhead. Eight sunbirds occur in the area. The Orange-breasted sunbird is the characteristic species in the fynbos, while the Greater double-collard and Black sunbirds will usually be found in the low-lying bushy parts. Some threatened and near-threatened species inhabit the area at certain times of the year. These include Blue crane, African marsh harrier, Striped fluff tail, Stanley's bustard, Black harrier, Protea canary, Black stork and Peregrine falcon.

Avifaunal Impact Assessment

The nature of the proposed activity, being distribution lines, prompted the need for an avifaunal specialist study. GIBB appointed Mr. Jon Smallie of Indwe Environmental Consulting to conduct an avifaunal impact assessment. A summary of their finding are provided below.

Up to approximately 136 bird species could be expected in the study area, based on what has been recorded by the Southern African Bird Atlas Project 2 in the three relevant pentads. Across the three

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pentads (a 5' × 5' grid cell, i.e each 1:50 000 map which is 15' × 15' is made up of nine pentads) a total of four Red Listed species were recorded, comprising of 2 Vulnerable and 2 Near-threatened. In addition, the White Stork (*Ciconia ciconia*) protected internationally under the Bonn Convention on Migratory Species also frequents the area. The most important species for this study are the Blue Crane (*Anthropoides paradiseus*), Secretary Bird (*Sagittarius serpentarius*), and White Stork (*Ciconia ciconia*) These species are all relatively abundant in the area and are highly vulnerable to collision (and electrocution in the case of the eagle) with overhead power lines in South Africa. These species are thus the main focus of most of this study.

The nearest Important Bird Area (IBA – Barnes 1998) IBA SA093-Baviaanskloof, lies approximately 2 km west of the alternative route for the proposed power line at its closest point. The preferred route is approximately 10 km east of the IBA. Large species are likely to leave the IBA and interact with the powerline, these species include: Black Stork (*Ciconia nigra*), Booted Eagle (*Hieraaetus pennatus*), Verreaux's Eagle (*Aquila verreaux*), Peregrine Falcon (*Falco peregrines*), Martial Eagle (*Polemaetus bellicocsus*), Blue Crane, Denham's Bustard (*Neotis denhamii*), Black Harrier (*Circus maurus*) and White Stork. With the exception of the Black Stork most of these species are likely to interact with the powerline.

The broader area within which this project is proposed is particularly well known as a stronghold of the Blue Crane, Denham's Bustard and White-bellied Korhaan. The habitats that these species favour are the mixture of pastures, natural vegetation and dams and wetlands. All of these are present on the proposed route, particularly in the south on the flatter areas close to Humansdorp. The Denham's Bustard has proven highly vulnerable to collision with overhead power lines throughout South Africa. Additional mortality due to this unnatural cause should be prevented where possible. Although few records of collisions of White-bellied Korhaan exist, other korhaan species have been recorded colliding with power lines and it stands to reason that White-bellied Korhaan would also be at risk. Although not its core range, the Blue Crane is also common in this area, and is probably the species recorded colliding with power lines most frequently in South Africa. This national bird, also a near endemic to South Africa should also be protected from additional mortality as far as possible.

In terms of large raptors in the area, Martial Eagle is probably the most likely Red Listed species to occur, although it is certainly not abundant in the area. This species utilizes massive territories, and so it is possible that just one pair exists in the broader area. This species will certainly utilise power line poles to perch on, and will therefore be at risk of electrocution if incorrect pole structures are used. Although not Red Listed, the Verreaux's and African Fish Eagle are also large raptors likely to occur in the area. Verreaux's Eagle would be more towards the mountainous areas north of the proposed line, whilst African Fish Eagle would frequent the Gamtoos River and farm dams in the area. The presence of these three large eagles is sufficient grounds to ensure that a bird friendly pole structure is used for the proposed power line.

The impacts of disturbance of birds, and destruction or alteration of habitat are determined to be of relatively low significance for the proposed project, due to the already impacted nature of most of the study area. The impact of collision of birds with certain sections of the proposed line is considered to be of moderate significance and warrants extensive mitigation measures, which have been detailed in the report. This includes the need for an avifaunal walk down to determine the exact spans of line requiring marking. Whilst electrocution is possible on 132 kV lines, the proposed tower structures (lattice structure with phase-phase of 2000 mm and cross arm of 2550 mm) should be safe for the birds in area. Vultures do not occur in the area, so the only species large enough to be at risk of electrocution on a 132 kV line are the eagles, which are generally solitary. Three alternative routes have been proposed for the power line, the preferred option and Alternatives A and B. The preferred route for avifauna is 'The Preferred Route'. Alternative A and Alternative B are, however, not fatally flawed and would not result in unacceptably high levels of impacts on

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birds.

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Section C: public participation

ADVERTISEMENT and Notice

Publication name	The Herald (English), Die Burger (Afrikaans)	
Date published	Both published on 2 nd April 2012	
Site notice position 3 site notices and one poster placed	Latitude (Proposed Patensie substation)	Longitude
	33°47'02.63" S	24°50'21.76" E
	Latitude (Existing Melkhout substation)	Longitude
	34°00.136' S	24°46.755' E
	Latitude (along R330 road)	Longitude
	33°54'42.23" S	24°49'08.13" E
	Latitude (Humansdorp library - poster)	Longitude
	34°01.645' S	24°46.352' E
Date placed	2 nd April 2012	

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

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)
Neil Lurie	The Blacksmith Plover Trust	neil@mapdev.co.za
Warren Manser	Stakeholder	info@stfrancisbaytourism.co.za , warren@dunesstfrancis.com
Maggie Langlands	St Francis Kromme Trust	Langlands@wirelessza.co.za
Ria Bestbier	Bird Club	nakria@telkomsa.net
Kobus Reichert	Gamtkwa Khoisan Council	kobusreichert@yahoo.com
Morgan Griffiths	WESSA	Morgan@wessaep.co.za
Tollie Kruger	Landowner	acstsitsi@telkomsa.net
Aubrey Marais	Landowner	amarais@kouga.gov.za
Corn Meyer van der Watt	Landowner	cornvdwatt@hotmail.co.za
Eddie Ferreira	Landowner	eddie@gamtoos.co.za
Eric Campher	Landowner	eric.campher@dcs.gov.za
Evert Bezuidenhout	Landowner	evertbez@gamtoos.gov.za
Reynier Ferreira	Landowner	gonnakop@gamtoos.co.za
Helgard Rautenbach	Landowner	helgardr@gamtoos.co.za
Barbara Kemp	Landowner	kempbabs@gmail.com
Ettienne le Roux	Landowner	leroux@lantic.net
Noely le Roux	Landowner	082 554 1670
Ain du Preez	Landowner	082 491 8208
Charl Marais Van den Heever	Landowner	vdhfam@telkomsa.net
Charl Rautenbach	Landowner	082 820 5816
Claase Arnoldus Mauritis	Landowner	082 344 3786
Francois le Roux	Landowner	082 572 5189
Jacques Steenkamp	Landowner	082 925 3932, 042 295 2734
Johan Ferreira	Landowner	082 447 7615

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Nicol Johannes Lourens	Landowner	082 454 3719
Nols Claasen	Landowner	082 344 3786
O.J Ferreira	Landowner	082 821 4572
Arno Renier Kruger	Landowner	acstsitsi@telkomsa.net

Application for deviation from the EIA regulation to inform adjacent landowners was made to DEA, and was granted by DEA. See Appendix E for correspondence between GIBB and DEA in this regard.

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.

Issues raised by interested and affected parties

Summary of main issues raised by I&APs	Summary of response from EAP
Impact of power lines on wetlands, birdlife, planted pastures and visual impact	A wetland specialist is currently investigating the all wetlands in the vicinity of the proposed power lines and a water use licence application is underway to assess and mitigate possible impacts in watercourses in the area. The avifauna specialist found that the potential impact on the bird populations in the area would be of low significance and can be successfully mitigated if their recommendations are implemented. The heritage specialist indicated that the possible impacts of the power lines on the panoramic views in the area will be of low significance and can be successfully mitigated if their recommendations are implemented.
Placement of power lines in relation to roads. Vertical clearance of power lines	The positions for erection of tower structures will comply with all Eskom and SANRAL standards and guidelines. No work will commence on the power lines until the EIA process is completed
Public participation for cultural issues	The public participation process has fully met all regulations in the NEMA EIA regulations 2010. The draft BAR including specialist reports was also made available to Mr Reichert at the start of the 40 day review period. Heritage Impact Assessment Reports sent to Mr Reichert on 06/06/2012.

Comments and response report

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

AUTHORITY PARTICIPATION

BASIC ASSESSMENT REPORT

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
DEA	Coenrad Agenbach	012 310 3911		cagenbach@environment.co.za	Private Bag X6041, Port Elizabeth, 6000
SAHRA	Mariagrazia Galimberti	021 462 4502		mgalimberti@sahra.org.za	P.O. Box 4637, Cape Town, 8000
ECPHRA	Sello Mokhanya	0436422 811		smokhanya@ecphra.org.za	P.O. Box 16208, Amathole Valley, 5616
DEDEAT	Alan Southwood	0415085 800		Alan.southwood@deat.ecape.gov.za	Private Bag X5001, Greenacres, 6057
DWA	Joseph Jacobs	041 586 4884		jjacobs@dwaf.co.za	Private Bag X6041, Port Elizabeth, 6000
DOT	Marius Keyser	041 403 6001		Marius.keyser@dpw.ecape.gov	P.O. Box 11100 Algoa Park, Port Elizabeth, 6000
Transnet	Gilbert Nortier	083 407 7924		Gilbert.nortier@transnet.net	Corner Patterson & Broad Street, Port Elizabeth
SANRAL	Nana Gouws	041 398 3214		gouwsj@nra.co.za	P.O. Box 27230, Greenacres, Port Elizabeth
DWAF	Thabo Nokoyo	044 382 5460		nokoyot@dwaf.gov.za	
DAFF	Theo Stihle			Theo@daff.gov.za	
Department of Roads E.C.	Ms Wilma Snyman			Wilma.snyman@dpw.ecape.gov.za	
Cacadu District Municipality	Lyn Nance (Office of Municipal Manager and Mayor)			lnance@cacadu.co.za	
Cacadu District Municipality	Howard Sikweza			hsikweza@cacadu.co.za	
Cacadu District Municipality	Clarissa Paul – PA to Cacadu Mayor			cpaul@cacadu.co.za	
Kouga Local Municipality	Aubrey Marais	042 200 2200		amarais@kouga.gov.za	P.O. Box 26 Humansdorp, 6304
Kouga LM Councillor	Benjamin Rheeder	042 298 0269		benrheeder@telkomsa.net	
Kouga	David Alderhoff	042 296		davidald@mweb.co.za	

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Councillor		1721			
Kouga Councillor	Sophia Thiar			johhen@telkomsa.net	
Councillor	Mercia Ungerer			merciaungerer@telkomsa.net	
Kouga LM Councillor	Frederick Campher	073 295 2091			1 Tobais Street, Kruisfontein, Humansdorp, 6300
Kouga LM Councillor	David Ntshiza				P.O. Box 3, Hankey, 6350

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

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

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. **Proof of application for deviation to DEA and subsequent correspondence is included in Appendix E4.**

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

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

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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.

All three proposed powerline routes (Preferred Alternative, Alternative A and Alternative B) all follow a very similar route with the two alternatives only deviating slightly from the Preferred Alternative. All three alternatives have the same impacts and the significance of the impacts and proposed mitigation are all the same. The first impact summary table has been completed for all three alternatives. It is taken that the significance column in the table below assumes successful implementation of mitigation measures.

Activity	Impact summary	Significance	Proposed mitigation
All proposed alternatives			
Economic development	<i>Direct impact:</i> Improved reliability of electrical supply and increased supply to region and resulting economic growth	High positive	No mitigation required
	<i>Direct impact:</i> Creation of temporary jobs during construction	Low positive	No mitigation required
Use of construction plant/ vehicles	<i>Direct impacts:</i> Damage to roads and access tracks from construction vehicles and vehicles used for site visits	Low negative	Construction vehicles to be confined to existing access roads as far as possible, with access road to be upgraded located on flat areas where possible. Restrict vehicle speed on access roads to 20 km/h
	<i>Direct impacts:</i> Establishment of side tracks	Low negative	Vehicles to be confined to access roads to prevent vehicles using alternative routes
	<i>Direct impacts:</i> Increase in traffic	Low negative	Arrange road travel outside peak traffic periods.
	<i>Direct impacts:</i> Noise pollution	Low negative	Plant and vehicles must be in good working order and inspected daily. Use silencers on all equipment, where appropriate. Working hours must be restricted to 07h00 to 18h00 Monday to Friday excluding public holidays.
	<i>Direct impacts:</i> Air (dust) pollution	Low negative	Apply appropriate dust suppression methods. Water to be used sparingly, and only where no water restrictions are in effect. Water will be sourced from an approved supplier.
	<i>Direct impacts:</i> Fire	Low negative	Employ a fire officer for onsite control. Fire fighting equipment to be kept on site and serviced regularly. No fires to be lit on site

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Activity	Impact summary	Significance	Proposed mitigation
			and no smoking on site.
	<i>Direct impact:</i> Inhibition of vegetation re-establishment	Low negative	Soil should be deeply ripped to loosen compacted layers.
Vegetation clearing	<i>Direct impacts:</i> Increased stormwater run off	Low negative	Undertake vegetation clearing during the dry season. Vegetation clearing must be weather dependent in short term. Stockpile areas will be decided and approved by the project manager and appointed ECO before construction commences on site.
	<i>Direct impacts:</i> Loss of stockpiled topsoil	Low negative	Cover stock piles with heavy duty shade cloth to prevent run off. Remove all stockpiles once construction is complete.
	<i>Direct impacts:</i> Disturbance of flora and fauna	Low negative	Vegetation clearance should be conducted systematically from the start to end of the route. Avoid strip clearing. A faunal expert should complete a walk through construction site prior to any work commencing to check for nesting birds and any subterranean species.
Construction site management	<i>Direct impacts:</i> Impacts of visual aesthetics	Low negative	Follow requirements in EMPr to keep construction site presentable.
	<i>Direct impacts:</i> Spillages of hazardous substances	Low negative	Fuels and chemicals should not be stored on site or at the site camp. Where unavoidable, store fuels and chemicals in a bunded area. Provide staff with hazardous materials training. Chemical toilets to be used on site, grey water should be disposed off site at a licensed waste treatment works. No servicing or repair of vehicles on site. No concrete mixing on site. Water used for plant cleaning should be treated as grey water and disposed of at licensed water treatment works.
	<i>Direct impacts:</i> Impacts from unmanaged non-hazardous solid waste	Low negative	Keep waste in vermin proof bins with lids. Waste to be removed from site regularly.
	<i>Direct impacts:</i> Fires	Low negative	Employ a fire officer for onsite control. Fire fighting equipment to be kept on site and serviced regularly.
Impacts on fauna	<i>Direct impacts:</i> Disturbance of avifauna	Low negative	Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. Construction to be done according to environmental best practice standards. If nests are discovered in areas to be disturbed, all efforts must be made to avoid disturbance of the nests or trees. If this is not possible, bird nests will be assessed by a avifauna specialist, whereupon actions will be based on the recommendations of the specialist.

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Activity	Impact summary	Significance	Proposed mitigation
	<i>Direct impacts:</i> Habitat destruction	Low negative	Strict control should be maintained over all activities during construction, in particular heavy machinery and vehicle movements, and staff. Construction to be done according to environmental best practice standards.
	<i>Direct impacts:</i> Loss of habitat for species of concern	Low negative	Should species of special concern be identified, all reasonable measures should be implemented to minimise destruction. Relocate flora and fauna species of concern from site, apply for permits for those protected under legislation.
	<i>Direct impacts:</i> Collisions	Low negative	An avifaunal specialist is to complete a walkthrough of the final powerline route to identify any high risk sections of line. Identified high risk sections of the power line to be installed with a suitable anti bird collision marking device approved by Eskom, and as per Eskom standards. Preliminary high risk sections for bird collisions have been identified in Table 4 of the avifauna specialist report attached as Appendix D1.
	<i>Direct impacts:</i> Breeding habitat for birds	Low positive	No mitigation required
Impacts on vegetation	<i>Direct impacts:</i> Loss of vegetation	Low negative	Mitigation will not be possible for the loss of intact vegetation where pylon and access road construction footprints are required. Relocate species of concern from site. Apply for permits for those species protected under legislation.
	<i>Direct impacts:</i> Loss of species of special concern	Low negative	Search and Rescue to be implemented before any construction commences.
	<i>Direct impacts:</i> Increased risk of alien invasion	Low negative	An alien management plan must be implemented and long-term monitoring conducted.
	<i>Direct impacts:</i> Clearing of alien invasion	Low negative	An alien management plan must be implemented and long-term monitoring conducted
Impacts on heritage resources	<i>Direct impact:</i> Impact on Gamtoos Scenic Route	Low negative	Towers should be located such that they do not interrupt skylines, and are not visible from scenic route
	<i>Direct impact:</i> Impact on Paleontological Heritage Resources	Low negative	A heritage practitioner should complete a 'walk-through' of the final selected power line route and all other activity areas prior to the start of any construction activities.
	<i>Direct impact:</i> Impact on traditional burial group	Low negative	A heritage practitioner should complete a 'walk-through' of the final selected power line route and all other activity areas prior to the start of any construction activities.
Farming potential	<i>Direct impact:</i> Impacts on agricultural potential and expansion	Low negative	Use self-supporting monopole structures in farming areas to minimise loss or disruption of farming activities or production.
	<i>Direct impact:</i> Loss of	Low negative	No mitigation proposed

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Activity	Impact summary	Significance	Proposed mitigation
	property value		
Crime	<i>Direct impact:</i> Theft and vandalism	Low negative	Install anti-climb wires, Erect warning signs, and restrict access to the servitude. Access control at substation
	<i>Indirect impacts:</i> Erosion	Low negative	Construction site and cleared areas should be monitored on an ongoing basis. Apply appropriate erosion protection measures where erosion identified.
	<i>Cumulative impacts:</i> Impact of additional power lines	Low negative	The lattice structures to be used are designed to minimise the visual impact. Furthermore, the new power lines will be placed at least 95 m away from proclaimed public roads, which will further minimise the cumulative visual impact.
	<i>Direct impacts:</i>		
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		
Alternative 2 (Alternative A)			
N/A	<i>Direct impacts:</i>		<u>See above.</u>
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		
	<i>Direct impacts:</i>		
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		
Alternative 3 (Alternative B)			
N/A	<i>Direct impacts:</i>		<u>See above.</u>
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		
	<i>Direct impacts:</i>		
	<i>Indirect impacts:</i>		
	<i>Cumulative impacts:</i>		
No-go option			
	<i>Direct impacts:</i> Landscape remains untouched	Low +	No mitigation required
	<i>Indirect impacts:</i> No	Low -	Implement the construction of the distribution

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Activity	Impact summary	Significance	Proposed mitigation
	additional jobs created		line as proposed
	<i>Indirect impact:</i> Current supply likely to inhibit economic development	High -	Implement the construction of the distribution line as proposed
	<i>Indirect impact:</i> Access to non-serviced households will not be achieved	High -	Implement the construction of the distribution line as proposed
	<i>Cumulative impacts:</i>		

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

Environmental impact statement

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

Alternative A (Preferred Alternative)

In consideration of the specialist assessment reports, systematic comparisons of the preferred and alternative route options and assessment of all identified impacts this Environmental Assessment Practitioner has come to the following conclusions.

Construction and maintenance will be easier than for Alternatives A and B because this route follows the R330 for the majority of its length. Environmental impacts associated with this preferred route can be successfully mitigated if the recommended mitigation measures in the EMPr are implemented and adhered to. Further, all land owners whose property the proposed route will cross have agreed to allow erection of the power lines across their properties. Therefore, although not the most cost-effective line to construct, the route is preferred as all environmental impacts can be mitigated to acceptable levels and collective landowner consent has been obtained which will ensure construction of tower structures on the identified properties. Micro-siting of all tower structures will be discussed with landowners before installation of the structures commence.

Alternative B (Alternative A)

This option may be less expensive to construct compared to the preferred alternative when line distance and number of strain towers are considered. However maintenance will prove more difficult and likely more expensive. Furthermore, some land owners, especially owners of the game farms, have rejected Eskom's proposal to cross their property. Environmental impacts associated with this route alternative can be successfully mitigated if the recommended mitigation measures in the EMPr are adhered to. Land owner requirements and the mountainous terrain, making construction and maintenance difficult, have proven the most influential factors in concluding that this alternative is not favourable for implementation.

Alternative C (Alternative B)

From a construction and maintenance cost perspective, this alternative is the least ideal alternative due to the length of power line that will have to be constructed through mountainous terrain. Construction and maintenance will be far more challenging for this line compared to the other alternatives. Environmental impacts associated with this route alternative can be successfully mitigated given mitigation measures in the EMPr are adhered to. Visual impacts may be potentially less significant. As in Alternative A some land owners, especially owners of the game farms, have rejected Eskom's proposal to cross their property. Land owner

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requirements and mountainous terrain have thus proven the most influential factor in concluding that this option cannot be further considered.

No-go alternative (compulsory)

The no development alternative in the context of this project implies that the power line and substation would not be constructed and the Melkhout substation extension would not be completed. If the project does not proceed the negative impacts such as risk of collisions of birds, clearing of vegetation and soil erosion would be avoided, however if the project does not commence the region would be negatively affected by an inadequate and unreliable electricity supply, which would inhibit future developments in the area. The need to for stable and reliable power supply to meet current and future demand will outweigh the potential impacts to the surrounding environment, which is expected to be of low to medium significance, at best, and can be proactively mitigated to an acceptable level. The no-go alternative is therefore not recommended.

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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 X	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).

--

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, as described and assessed in this Basic Assessment Report, be considered for implementation. In the opinion of the EAP, the proposed activity is not fatally flawed and all potential impacts can be mitigated to an acceptable level.

Further, it is recommended that the proposed construction of the substation and distribution lines continue only if all recommendations and mitigation measures stipulated in the EMPr are followed and that an Environmental Control Officer (ECO) be employed throughout the duration of construction to ensure compliance with the BAR, EMPr and environmental authorisation.

Is an EMPr attached?

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

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

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

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

NAME OF EAP

SIGNATURE OF EAP

DATE

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References

Cacadu District Municipality, 2011 Cacadu District Municipality Integrated Development Plan (IDP) 2007-2012 Review 2011

Cacadu District Municipality, 2009 Spatial Development Framework 2009
Eskom 2007 Building Line Restrictions, Servitude Widths, Line Separators and Clearances From Power lines.

Eskom 2000 Standards for Bush Clearance and Maintenance Within Overhead Powerline Servitudes.

Eastern Cape Socio Economic Consultative Council. Statistics At Your Fingertips Database.

Mucina, I., & Rutherford, M. (2006). The vegetation of South Africa, Lesotho and Swaziland. Pretoria: South African Biodiversity Institute.

Kouga Local Municipality, 2011, Kouga Municipality Integrated Development Plan Review 2011/12

Koukamma Local Municipality, 2011 Municipal Annual Report 2010/2011

Koukamma Local Municipality, 2011 Koukamma Municipality Integrated Development Plan 2010-2011

Presidential Infrastructure Coordinating Commission 2012, Provincial and Local Government Conference A Summary of the Infrastructure Plan

Province of the Eastern Cape, 2010, Eastern Cape Provincial Spatial Development Plan

Statistics South Africa (STATS SA), 2009 Community Survey 2007: Basic Results – Eastern Cape

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The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information

BASIC ASSESSMENT REPORT

PROJECT NAME : ESKOM Distribution Division
 TITLE OF DOCUMENT : Melkhout to Patensie distribution line BA PROJECT No. : J29224
 : Basic Environmental Assessment for the installation of 132kV distribution lines
 from Melkhout to Patensie, Cacadu District (Draft)
 ELECTRONIC LOCATION : \\PORTELIZABETH-5\projects\J29224_Eskom_Melkhout-Patensie_PPP (EL
 project)\3-Tasks\Reports\BAR\Final BAR\Melkhout-Patensie final BAR_v0.2_KP.doc

	Approved By	Reviewed By	Prepared By
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DATE 05/09/2012	SIGNATURE	SIGNATURE 	SIGNATURE 

	Prepared by	Prepared By	Prepared By
ORIGINAL	NAME	NAME	NAME
DATE	SIGNATURE	SIGNATURE	SIGNATURE

	Approved By	Reviewed By	Prepared By
REVISION	NAME	NAME	NAME
DATE	SIGNATURE	SIGNATURE	SIGNATURE

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