



**DRAFT BASIC ASSESSMENT REPORT FOR THE PROPOSED 44/11KV SUBSTATION AND 44KV POWERLINE IN DELMAS, MPUMALANGA PROVINCE**

**Report for:** Eskom Holdings SOC  
**DEA Ref:** 14/12/16/3/3/1/1212  
**Date:** October 2014

# BASIC ASSESSMENT REPORT

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## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(For official use only)

**File Reference Number:**

**Application Number:**

**Date Received:**


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

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### Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

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14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

**SECTION A: ACTIVITY INFORMATION**

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

The proposed activity entails the construction of the Delmas North 44/11kV substation and associated 44kV loop-in powerlines. The proposed development site is located within the jurisdiction of the Victor Khanye Municipality (Mpumalanga Province), approximately 3 km northeast of the Delmas Central Business District and in close proximity to the following townships (refer to Figure 1):

- Botleng;
- Mandela Village;
- Mandela Park, and
- Delpark.



**Figure 1. Aerial photograph (source: Google Earth)**

The project includes the following main components:

- Construction of the 44/11kV 20MVA Substation
- Construction of the access road
- Construction of the 44kV powerlines

## 1. Scope of Work for the 44/11kV Substation

**Primary Plant:** Build a complete 44/11kV 1x 20MVA substation at the proposed site next to Delmas site (See appendix A, site plan and appendix H). The substation to consist of 2 x incoming 44kV feeder bays, 44kV busbar and 1 x 44/11kV 20MVA transformer bay.

- **Control plant:**

Install new: 2 x line impedance protection panels and schemes; 1x transformer protection panels and schemes; Extend LV restricted earth fault to the 11kV customer incomer switchgear for each 11kV bay; 1x tap-changer control schemes on new transformer protection panels; 1 x communication relay (bay processor); 110VDC battery and charger; AC/DC panel; Substation RTU and radio kit; Revise the protection settings on the remote 44kV feeder bays; Provide control and supervisory cabling accordingly.

## 2. Scope of Work for the Construction of the access road to the substation

Construct the  $\pm 500\text{m}$  (length) and  $\pm 6\text{m}$  (width) access road to the proposed Delmas north substation. (See Appendix A). The proposed access road to Delmas North substation will be joined to the existing gravel road in the area as represented on appendix A.

## 3. Scope of Work for the Construction of the powerline

Build 2 x  $\pm 5\text{km}$  single circuit lines (loop-in configuration) from the existing Delmas DS-SAR Dryden 44kV lines towards the new substation site. The four proposed alternatives are represented on figure 1 and the map attached as appendix

A of this document, as option 1=Yellow, Option 2 –green, Option 3(a)-Red and 3(b)-Blue

Further to the construction of the Delmas North substation, the construction of 2 x  $\pm 5\text{km}$  single circuit lines (loop-in configuration) and associated infrastructure (pylons / supporting structure – refer to Figure 2 for typical illustrations of the structures proposed by Eskom) from the existing Delmas DS-SAR Dryden 44kV lines towards the new substation will be required (refer to Figure 3).



Figure 2. Illustration of the pylon / support structures proposed (source: Eskom)

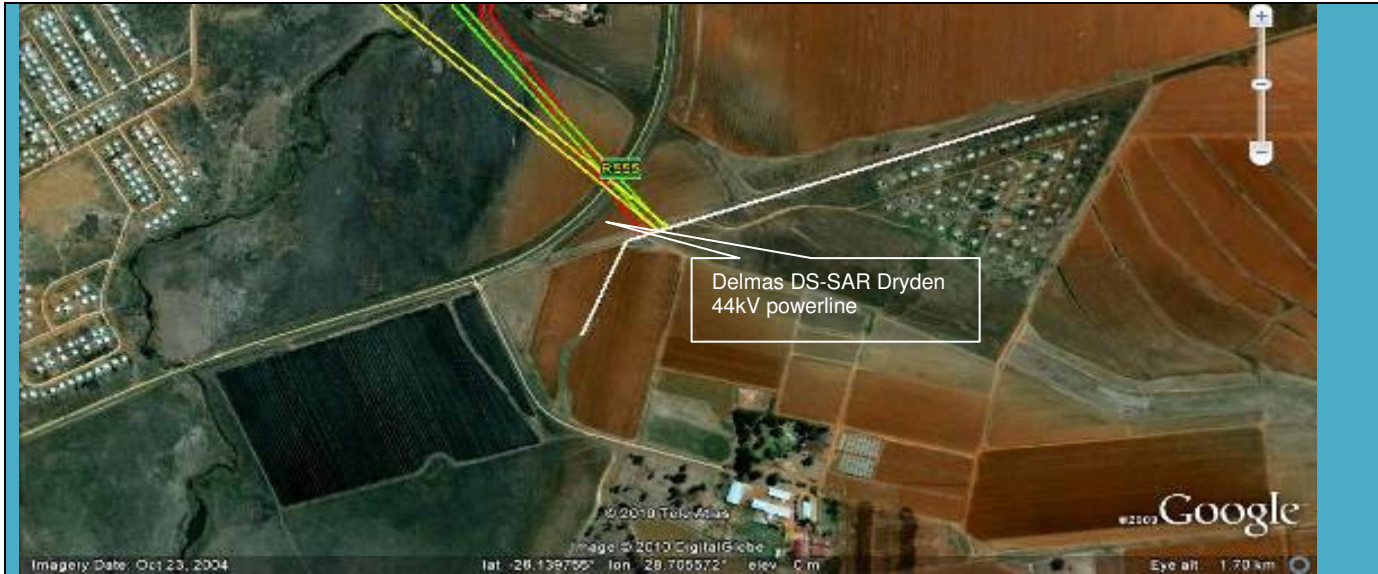


Figure 3. Proposed loop-in from the existing Delmas DS-SAR Dryden 44kV powerline (source: Google Earth)

**Technical Details for the Powerline:**

**a) Number of pylons / powerline support structures within the wetland**

The table below presents a comparison of the route alternatives. Option 3b will be associated with the least impact on the wetland. This alignment crosses the shortest stretch of wetland, will have the fewest number of towers located within the wetland, and as the line is located immediately adjacent to the boundary of the development, will have both towers located within an existing impacted area of the wetland, thus not being likely to create any further impact on the wetland at these tower locations. Due to these factors Option 3b is preferred above the other three alternatives, and it is strongly recommended that this alignment be selected as the preferred alignment to be put forward for development, as it will be highly unlikely to be associated with any impact on an un-impacted section of the wetland.

Alternative	Length of Wetland Traversed	Minimum Number of Towers within wetland	Towers to be located within a highly impacted part of the wetland?
Option 1	1.77km	8	0
Option 2	1km	5	1
Option 3a	0.75km	4	3
Option 3b	0.4km	2	2

**b) Type of the structure to be used**

The 66kV self-supporting steel mono-pole intermediate suspension structures, guyed steel mono-pole in-line and angle strain structures will be used for the construction of the 44kV Powerline. Refer to Figure 2 above for an illustration of the mono-pole structures.

**c) The width, length of the structure and the material used**

The final footprint for the planted self-supporting mono-pole structures is 1,2m x 1,2m. The final footprint for guyed mono-pole in-line strain is 0,95m x 0,65m with 4 x diagonal stays positioned up to 17,0m from the structure centre. The final footprint for guyed mono-pole angle strain is 0,95m x 0,65m with 5 - 7 x bi-sector and line stays positioned up to 22,0m from the structure centre. The nominal lengths for the mono-pole structures vary between 18,0m - 24,0m. Normally 80µm protective zinc coating is required for Eskom installations, but a 120µm can be specified for special conditions.

**d) The access roads (for maintenance purposes)**

The temporary access road (see Map attached as appendix A) will be required during the construction phase of the project. Where possible

access along the power-line shall be established by vehicles passes over the same track on natural ground. Temporary access roads shall only be constructed and maintained where necessary In environmentally sensitive areas (e.g. wetlands or rocky areas), alternative means of accessing tower positions may be required (e.g. by foot). The exact distance of the foot path to the tower positions is not known as yet. Existing dirt roads will be used during construction and operational phases (for maintenance purposes).

## e) The depth of the foundation

The self-supporting mono-pole structure will be planted max 3,0m deep. All other foundation excavations are 550mm deep. Stays are installed 1,75m beep (See photo illustration below and the attached detail drawings).



Figure 4. Foundation excavation (source: Eskom)

## f) Material used for foundation

1:10 soil/cement mixture is compacted for backfilling (Use imported soil where poor soil conditions are applicable). For self-supporting mono-pole structures; 25MPa is the reinforced concrete pedestal foundations for in-line and angle strain mono-pole structures (refer to figures 5 & 6 below and Appendix C).



Figure 5. Foundation excavation (source: Eskom)



Figure 6. Foundation excavation (source: Eskom)

## 4. Description of the Receiving Environment

### 4.1. Climate

Delmas receives an average rainfall of about 575mm per year, with most rainfall occurring during summer. It receives the lowest rainfall in July (0mm) and the highest in January (104mm). The monthly distribution of average daily maximum temperatures for Delmas range from 17°C in June to 26°C in January. The region is the coldest during July when the mercury drops to 0.8°C on average during the night (SA Explore, 2000-2014).

## 4.2. Ecology

### 4.2.1. Vegetation

Vegetation structure is generally accepted to be more critical in determining faunal habitat than actual plant composition. Therefore, the description of vegetation presented in this study concentrates on factors relevant to faunal species abundance and distribution, and does not give an exhaustive list of plant species which occur in the study area. The study area falls within the 2628 BA quarter degree grid cells. Vegetation composition in the area consists of a transitional zone between Eastern Highveld Grassland (Gm 12) as well as Rand Highveld Grassland (Gm 11). The majority of the powerline and the proposed substation sites are situated within the Eastern Highveld (Gm 12) vegetation unit with a section of alternative 2 and 3 alignments bisecting highly degraded Rand Highveld Grassland (Gm11) previously classified as Bankenveld or Rocky Highveld Grassland (45%), Sandy Highveld Grassland (LR 38).

#### Eastern Highveld Grassland

It is characterised by short dense grass dominated by the usual highveld grass composition (*Aristida*, *Digitaria*, *Eragrostis*, *Themeda*, *Tristachya* etc) with small rocky outcrops with wiry, sour grasses and some woody species (*Acacia caffra*, *Celtis africana*, *Diospyros lycioides* subs *lyciodes*, *Parina capensis*, *Protea caffra*, *P. welwithchii* and *Searsia magaliesmontanum*).

It is distributed in Mpumalanga and Gauteng Province on the plains between Belfast in the east and the eastern side of Johannesburg in the west and extending southwards to Bethal, Ermelo and west of Piet Retief. It generally occurs in high rainfall areas on leached soils. The predominant rock types are shales and sandstones of the Vryheid and Volksrust Formations (Ecca Group, Karoo Sequence), giving rise to deep, red to yellow, sandy soils. It is also considered to be Endangered and is suitable for crop production. However, approximately 44% of this vegetation has been transformed by cultivation, plantation, mines and urbanization, resulting in a poor conservation status. In addition, the grassland has been impacted on by anthropomorphic activities as well as current human activities.

#### Rand Highveld Grassland

It is rich in species wiry, sour grassland alternating with low, sour shrubland on rocky outcrops and steeper slopes. Most common grasses on the plains belong to the genera *Themeda*, *Eragrostis*, *Heteropogon* and *Elionurus*. High diversity of herbs, many of which belong to the Asteraceae, is also a typical feature. The grassland is distributed in Gauteng, North-West, Free State and Mpumalanga Provinces. In areas between rocky ridges from Pretoria to Witbank, extending onto ridges in the Stoffberg and Roosenekal regions as well as Krugersdorp centered in the vicinity of Derby and Potchestroom, extending southwards and north-eastwards. It occurs on the Quartzite ridges of the Witwatersrand Supergroup and the Pretoria Groups as well as the Selons River Formation of the Rooiberg Group, supporting soils of various quality (shallow Glenrosa and Mispah forms especially on rocky ridges), typical Ba, Bc, Bd and Ib land types. It is considered to be endangered and the conservation target is 24%. Only 1 % is statutorily conserved. Almost half has been transformed mostly by cultivation, plantations, urbanization or dam building. Cultivation may also have had an impact on additional portion of the surface area of the unit where old lands are currently classified as grasslands in land-cover classifications and poor land management has led to degradation of significant portions of the remainder of this unit.. Furthermore, the area has been heavily impacted on by extensive overgrazing along the proposed alignments.

### 4.2.2. Fauna

#### Mammals

Mammal species recorded during field survey were identified by visual observations, trapping and animal tracks (footprints and droppings). No sensitive or endangered mammals were recorded within the study area or are likely to occur along the proposed alignment or substation sites.

#### Avifauna

There were 32 bird species recorded during the field visit and they are common, widespread and typical of a disturbed grassland



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environments as well as wetland system. One hundred and twenty five (125) species have been recorded for the 2605\_2840 pentad in which the substation and powerline are situated. No threatened birds were recorded during the survey or are likely to occur at the proposed substation sites.

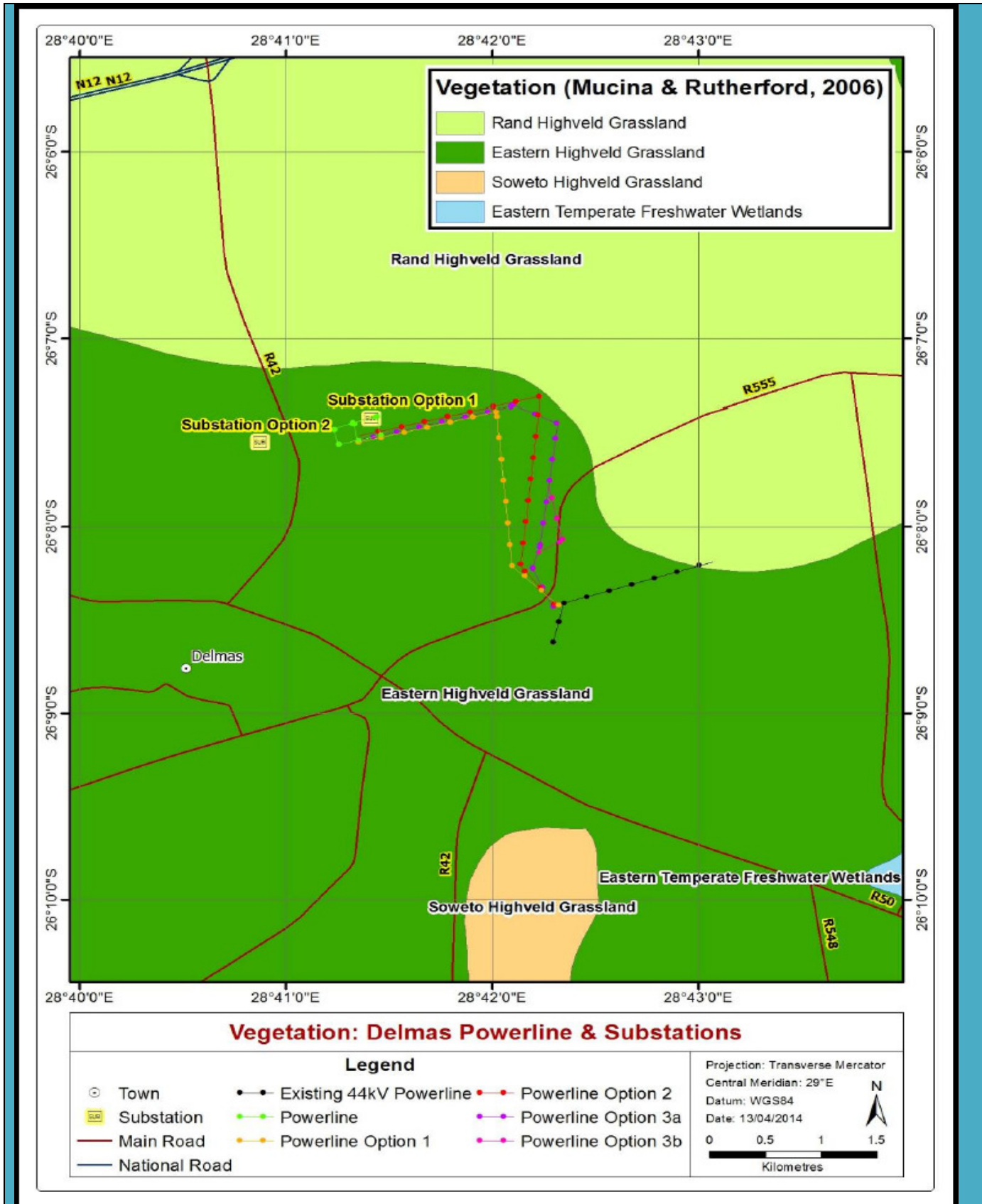


Figure 7: Vegetation Units of the Proposed Project

## 4.3. Heritage

### 4.3.1. Regional Overview

The cultural landscape qualities of the larger region essentially consist of two components. The first is a rural area in which the human occupation is made up of a limited pre-colonial element (Iron Age) as well as a much later colonial (farmer) component. The second component is an urban landscape dating to the colonial period and is linked to the rural colonial landscape. Historic Period: The Delmas district was proclaimed in 1954 and used to be mainly agricultural. As early as 1909 the Delmas Estate and Colliery Co began mining coal in the district. In addition to good roads, the Johannesburg-Witbank railway line and freeway traverses the district and the Springs-Ermelo line runs along the southern boundary. Cultivated holdings were established at Elof and Sundra. Apart from coal, silica is also mined in the district.

### 4.3.2. Identified Sites

The cultural heritage resources which are known to exist in the study area include cemeteries, graves and monuments.

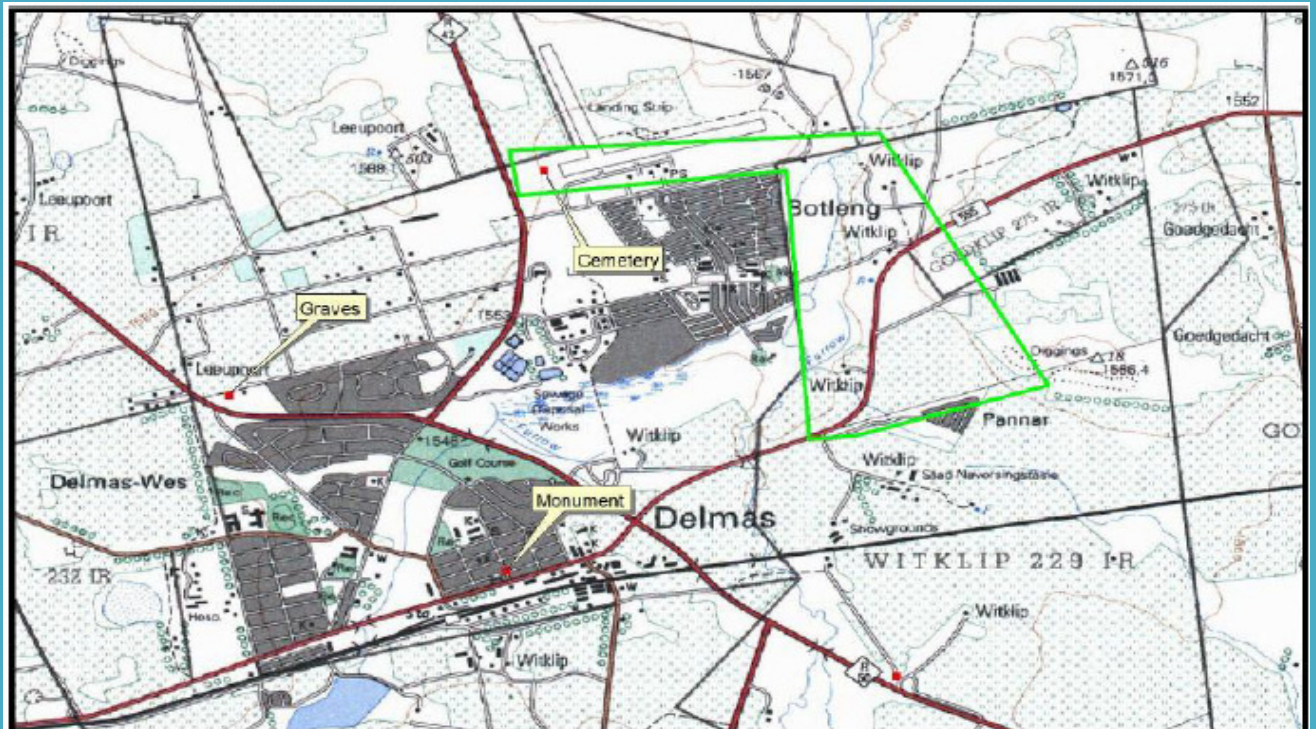


Figure 8: Location of Heritage Sites in the Study Area

#### Stone Age

There were no sites, features or objects identified in the study area dating to Stone Age.

#### Iron Age

There were no sites, features or objects identified in the study area dating to Iron Age.

#### Historic Period

There was large cemetery located adjacent to the western end of study area but well outside the corridor.

## 4.4. Surface Water

### 4.4.1. Macro Drainage Characteristics

The study area forms part of the wider Olifants River catchment, and is located in the quaternary catchment B20A, in which rivers, streams and wetlands drain north into the upper part of the Bronkhorst stream. Most drainage systems within the study area take the form of valley bottom wetland systems, many of which are naturally channelised, with the channel taking the form of a stream.

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### 4.4.2. Wetland Physical (Hydrological and Morphological) Characteristics

The wetland in the Study Area is located within a relatively wide and flat valley bottom. The valley bottom is naturally drained by a channel which takes the form of a stream, and as such the wetland is classified into the channelled valley bottom hydrogeomorphic form, as described above. Away from the wetland the footslopes in its immediate catchment rise very gently away from the valley floor on both sides. A low ridge or rocky outcropping occurs to the east of the central part of the wetland reach. Slightly further to the north of the area where the power line alignments are proposed to cross the wetland, the valley bisects another more prominent ridge and becomes much narrower and more incised. The valley bottom crossed by the power line alternatives is fed by another stream which drains a much wider catchment to the south-west.

The stream channel within the wetland is slightly incised, but along most of its length appears to be in a largely natural morphological state with relatively little bank erosion being evident; along most of its length through the Study Area the stream appears to have naturally vegetated and stable banks. *Phragmites australis* reeds and *Typha capensis* occur along stretches of the stream. The relatively shallow profile of the stream (approximately 1.5m from water level to the top of the macro channel bank) entails that the wide valley bottom on either side of the stream would be likely to be inundated by flow from the channel during times of spate or flood flows. An artificial embankment or levee has been constructed on the eastern bank of the river in the northern part of the wetland reach assessed, presumably to prevent the area behind the macro channel bank being flooded. A number of longitudinal shallow depressions occur within the wider valley bottom wetland. The soil form setting is suitable for the formation of Gilgai's (Gilgai's are small depressions in the soil surface, typically a few metres across and less than 30 cm deep formed from the cyclical swelling and shrinking of vertic clay soils). These depressions could be Gilgai's, but could also be related to the flooding of the wider valley bottom during times of spate flows.

It should be noted that leakage of an underground (sewage) pipeline that runs longitudinally through the wetland is introducing a relatively significant volume of polluted water to parts of the wetland away from the main channel of the wetland (although this water input does eventually flow into the channel). The spillage and upwelling of water from the buried pipeline was noted in the southern parts of the wetland. It appears to drain northwards, but also partly westwards towards the channel. In the part of the wetland to the south of the low quartzite ridge that outcrops to the west of the R555, this sewage water flows into what appears to be a natural flow depression in the eastern part of the wetland.



**Figure 9: Emergent wetland vegetation that has developed as a result of leakage of water (sewage) into the wetland**

#### **4.4.3. Wetland Physical (Hydrological and Morphological) Characteristics**

The soils found across most of the valley bottom are highly clayey in character. The soils sampled at the vast majority of sample locations within the wetland comprised of uniform black clay A horizon that typically extended to beyond 50-60cm below ground level. The clays were noted to be highly expansive with shrinking and swelling properties, as illustrated by the surface cracks that were evident over most of the valley bottom; this was identified in most areas to be a vertic A horizon. A vertic A horizon is termed as an A horizon that has both a high clay content and a predominance of smectitic clay minerals and which has the capacity to swell and shrink markedly in response to moisture changes. In all of the soil samples taken the A horizon extended lower than 50-60cm below ground level, so it could not be determined with certainty which of these soil forms existed on the site, but it is expected that most of the wetland consists of a Rensburg soil form as this is the soil form associated with vertic soils that occurs within wetlands.

Redoximorphic features were only found to occur in a few isolated samples. Where these occurred they took the form of iron (orange) mottling. The mottles were very small, and were mostly found in the depressions where they occurred. At the lower reaches of certain of the soil samples, soft white 'masses' were noted at about 50-60cm below ground level. These masses are lime nodules that are typically associated with vertic soils. In other samples no redoximorphic features were noted within 50cm of the ground level. Certain of these samples where this was noted occurred very close to the river channel or in some depressions where the period of inundation would be expected to be sufficient for the development of hydric soils. In this context it is important to examine the nature of soils beyond the valley bottom, onto the footslopes, as well as vegetation within the valley bottom. Soils beyond the flat valley bottom that occur on the gently rising footslopes are very different in character to the soils in the valley bottom, being well drained, red in colour and not clayey in character. These soils are non-hydric and display no signs of hydromorphism. There is thus a distinct transition between the vertic soils in the valley bottom and those on the surrounding footslopes. This transition is important for wetland delineation as described below.



Figure 10: Surface cracking in vertic soils in the valley bottom

#### 4.4.4. Wetland Delineation

The absence of redoximorphic features across much of the site due to the presence of vertic soils made the delineation of wetlands and hydric soils within the valley bottom difficult as part of the original wetland survey. Other indicators thus had to be used to identify and delineate the boundaries of the hydric soils on the site. Due to the degradation of the vegetation due to grazing pressure and due to the time of the year of the original survey with vegetation recovering from a recent veld fire, vegetation was not able to be used as a reliable indicator, although the species that were able to be identified are typically associated with wetlands.

Terrain unit and soil form change across the landscape thus formed the basis of the delineation of hydric soils on the site. As stated above, vertic soils occur predominantly within the valley bottom, and within and adjacent to a channel (stream), which is a typical wetland terrain unit. Very importantly, the vertic soils are limited to the valley bottom (valley floor) and a distinct change in soil form is evident between the edge of the valley bottom and the start of the footslopes, where unstructured (apedal) red non-hydric soils were found to occur. This distinct change is likely to reflect a sharp difference in hydrological regimes, with inundation of the valley bottom due to the water retention capacity of the clays and the hydrological input from the main stream channel and associated depressions likely to be associated with processes evident within hydric soils. The extent of the wetland in the valley bottom has thus been delineated based on the occurrence of the vertic black clay soils at the surface, with the boundary of the wetland area being taken to be the transition area to the surrounding red soils. The figure below indicates the spatial distribution of different soil types (colourations) on the development site as indicated by a Google Earth Image. It should be noted that the proposed substation sites do not occur in an area where hydric soils occur. It should be noted that the proposed substation sites do not occur in an area where hydric soils occur.

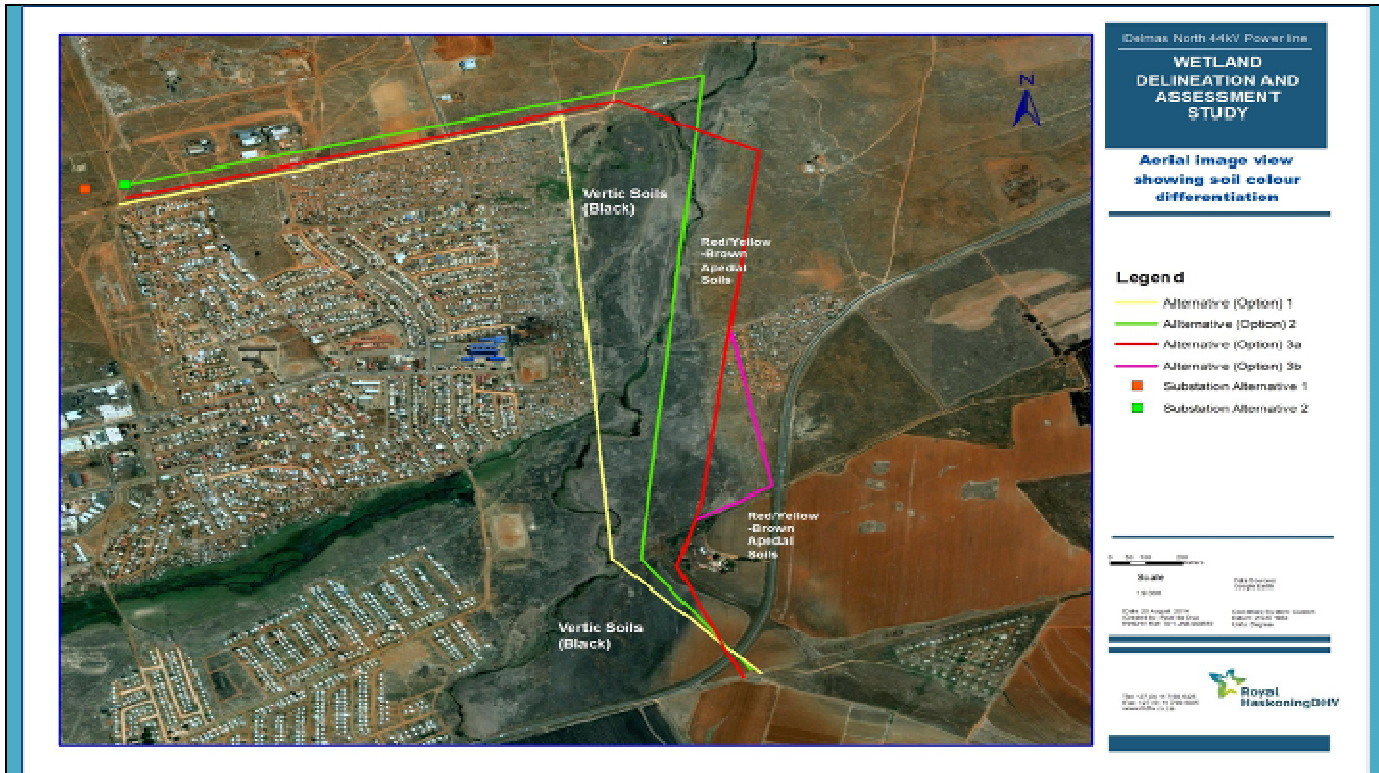


Figure 11: Google Earth Image indicating the spatial distribution of soil types (colourations) on the site.

#### 4.5. Avifauna

##### 4.5.1. Avifaunal Species \

In total 12 Red List species were recorded in the broader area previously by the Southern African Bird Atlas Project 1 and 2, comprising 3 Endangered, 4 Vulnerable, 5 Near Threatened species. There is also 1 Bonn listed species present in the broader study area. However the site itself is highly impacted on by human activities, and is unlikely to be important habitat for most Red List species. Electrical infrastructures constitute an important interface between wildlife and man. Negative interactions between wildlife and electricity structures take many forms, but two common problems in southern Africa are electrocution of birds (and other animals) and birds colliding with power lines. Other problems associated with the interaction the interaction of electrical infrastructure and animals are electrical faults caused by bird excreta when roosting or breeding on electricity infrastructure and disturbance and habitat destruction during construction and maintenance activities.

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**Table 1: Red Data Bird Species Recorded within Greater Delmas Areas**

Common Name	Taxonomic Name	SABAP1	SABAP2	Global Red List Status_2013	Regional Red List Status_2014	Likelihood of occurring on site	Preferred Micro-habitat	Importance of site for species	Likely impacts
Harrier, Black	<i>Circus maurus</i>	X		VU	EN	unlikely	fynbos and Karoo areas of the Western and Eastern Cape	low	habitat destruction
Stork, Yellow-billed	<i>Mycteria ibis</i>	X	X	LC	EN	unlikely	variety of wetlands with shallow water 10-40 cm deep for feeding and sandbanks or trees for roosting	low	collision
Marsh-Harrier, African	<i>Circus ranivorus</i>	X	X	LC	EN	unlikely	breeds in wetlands, foraging primarily over reeds and lake margins	low	habitat destruction
Korhaan, White-bellied	<i>Eupodotis senegalensis</i>	X	X	LC	VU	possible	found in grassland and open woodland habitats	low	collision
Falcon, Lanner	<i>Falco biarmicus</i>		X	LC	VU	unlikely	inhabits a wide variety of habitats, from lowland deserts to forested mountains,	low	collision
Secretarybird	<i>Sagittarius serpentarius</i>		X	VU	VU	unlikely	found in grasslands, ranging from open plains to lightly wooded savanna, but is also found in agricultural areas and sub-desert	low	collision
Grass-Owl, African	<i>Tyto capensis</i>		X	LC	VU	unlikely	grassland and savannah	low	habitat destruction
Kingfisher, Half-collared	<i>Alcedo semitorquata</i>	X		LC	NT	possible	inland wetlands	low	habitat destruction
Pratincole, Black-winged	<i>Glareola nordmanni</i>	X	X	NT	NT	possible	It breeds on grazed short-grass, fallow and ploughed fields as well as on alkaline flats, sandspits, shell ridges and sparsely vegetated salt pans	low	habitat destruction
Duck, Maccoa	<i>Oxyura maccoa</i>	X	X	NT	NT	unlikely	small temporary and permanent inland freshwater lakes	low	habitat destruction
Flamingo, Lesser	<i>Phoenicopterus minor</i>	X	X	NT	NT	unlikely	The species breeds on large undisturbed alkaline and saline lakes, salt pans or coastal lagoons	low	collision
Flamingo, Greater	<i>Phoenicopterus ruber</i>	X	X	LC	NT	unlikely	The species inhabits shallow eutrophic waterbodies such as saline lagoons, salt pans and large saline or alkaline lakes	low	collision
Stork, White	<i>Ciconia ciconia</i>	X	X		Bonn	possible	The species inhabits open areas, generally avoiding regions with persistent cold, wet weather or large tracts of tall, dense vegetation such as reedbeds or forests	low	collision

## 4.5.2. Micro Habitats

The wetland found within the study area is the only attractive microhabitat and will attract a great deal of non Red Listed species which include geese, ducks and ibises. The extent to which Red List species will frequent the area is unknown and the likelihood of this frequent is low.



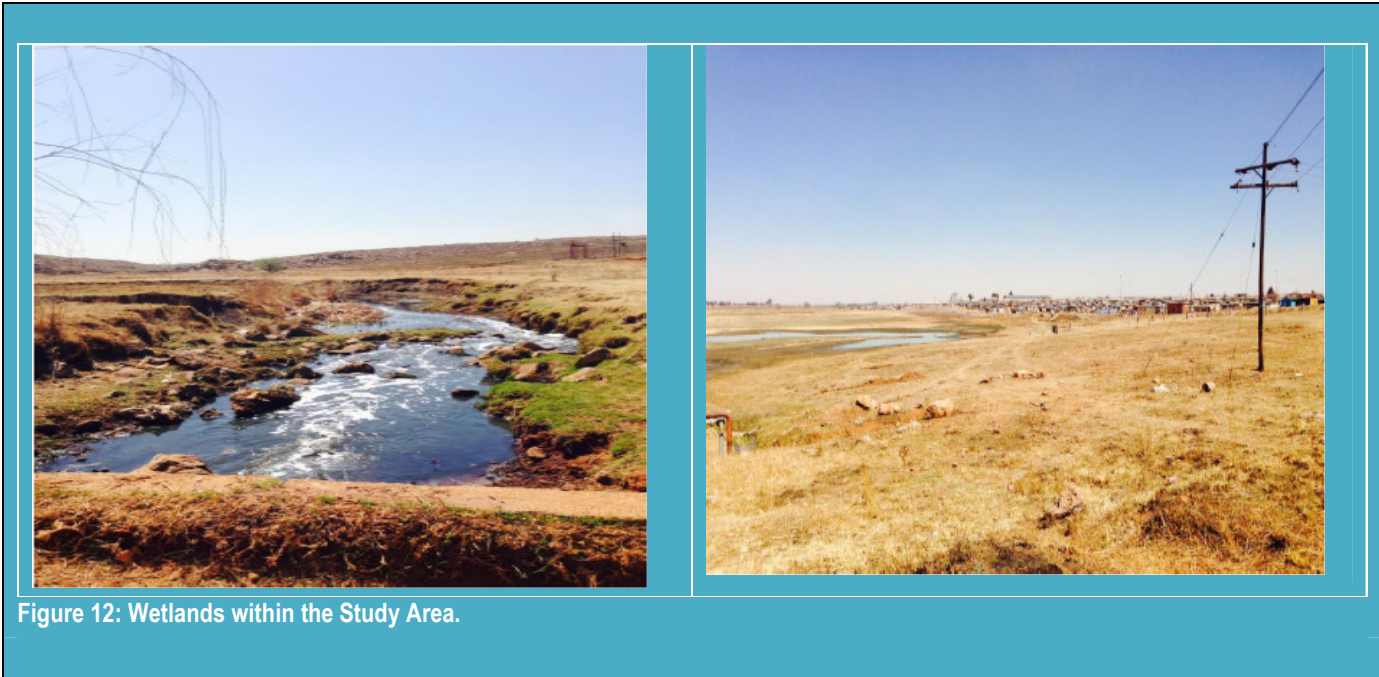


Figure 12: Wetlands within the Study Area.

**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 that triggers listed activity – if activities in GN R. 546 are triggered, indicate the triggering criteria as described in the second column of GN R. 543
GNR.544 Item 10 : 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.	The proposed project entails the construction of the 44kV powerline, substation and associated infrastructure in Delmas.
GNR.544 Item 11: The construction of: (i) canals; (ii) channels; (iii) bridges; (v) weirs; (vi) bulk storm water outlet structures; (xi) infrastructure or structures covering 50 square metres or more 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.	The proposed project will have powerlines that traverse through a wetland. Thus there will be minor disturbances on the wetland during the construction phase.
GNR 544 Item 20: The construction of a road, outside urban areas, (i) with a reserve wider than 13,5 meters or, (ii) where no reserve exists where the road is wider than 8 metres, or (iii) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Notice 545 of 2010.	The proposed access road to the site is approximately 9 meters.
GNR 546 Item 3 : The construction of masts or towers of any material or type used for telecommunication broadcasting or	Towers will be constructed and will form part of the substation infrastructure.

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 meters in height.

## 2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

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

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

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

### a) SUBSTATION SITE ALTERNATIVES

<b>Alternative 1 (preferred alternative)</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
Substation Alternative 1	26°07'53.11"	28°41'24.80"
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
Substation Alternative 2	26°07'52.70"	28°41'26.05"

**DESCRIPTION OF SUBSTATION SITE ALTERNATIVES**

**Substation Alternative 1:** The proposed site 1 (marked red in Figure 13) for the substation is located inside the newly established Botleg graveyard boundary which is on portion 12 of the farm Middelburg 231 IR in Delmas north. The coordinates for site 1 (26007'53.11" S & 28041'24.80" E).

**Substation Alternative 2:** The proposed site 2 (marked green in Figure 13) for the substation is located approximately 100m away from site 1 in the easterly direction and it is also on portion 12 of the farm Middelburg 231 IR in Delmas north. The coordinates for site 2 (26007'52.70"S & 28041'26.05" E).



Figure 13: Proposed Substation Alternative Sites

In the case of linear activities:

**POWERLINE ALTERNATIVES**

**Alternative:**

Alternative S1 (preferred)

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

**Latitude (S):**

**Longitude (E):**

26°08'24.61"S	28°42'27.95"E
26°07'39.63"S	28°42'14.64"E
26°07'31.16"S	28°41'21.20"E

Alternative S2

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

26°08'24.61"S	28°42'27.95"E
26°07'37.03"S	28°42'26.16"E
26°07'32.72"S	28°41'22.56"E

Alternative S3a

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

26°08'24.61"S	28°42'27.95"E
26°07'40.07"S	28°42'11.62"E

## BASIC ASSESSMENT REPORT

• End point of the activity	26°07'32.96"S	28°41'25.51"E
<b>Alternative S3b</b>		
• Starting point of the activity	26°08'24.61"S	28°42'27.95"E
• Middle/Additional point of the activity	26°07'59.73"S	28°42'17.81"E
• End point of the activity	26°07'47.71"S	28°42'16.01"E

### **DESCRIPTION OF POWERLINE ALTERNATIVES**

**Alternative 1** (marked yellow in Figure 8 and option 1 on Appendix A) for the powerline will be loop in from the existing Delmas SAR Dryden 44kV powerline that is located in portion 3 of the farm Witlip 229IR and move towards the northerly direction passing through the R555 road and the remainder of portion 1 of the farm Witlip 229 IR, it then turns in the north westerly direction to portion 12 of the farm Middelburg 231 IR where it will be connected to the new proposed substation. This alternative is approximately 40m from the Delpark EXT 4 township and its coordinates are (26007'39.63"28042'14.64"E). The total length which alternative 1 transverses the wetland is 1.77km and approximately 8 towers will be placed within the wetland if the maximum span is 200m.

**Alternative 2** (marked light green in Figure 8 and option 2 on Appendix A) for the powerline will looped in from the existing Delmas SAR Dryden 44kV powerline that is located in portion 3 of the farm Witlip 229IR and move towards the northerly direction passing through to portion 9 and 7 (in which on the locality map is referred to as portion 17) of the farm Witlip 229 IR, it then turns in the north westerly direction to portion 12 of the farm Middelburg 231 IR where it will be connected to the new proposed substation. This alternative is approximately 200m from alternative 1 and its coordinate are (26007'37.03"S & 28042'26.16" E). This alternative is also located approximately 52m from the Delpark EXT 4 township. The 2nd alternative will transverse the wetland area with the total distance of 1km and about 5 towers will be placed in the wetland.

**Alternative 3a** (marked red in Figure 8 ) for the powerline ( referred to in the locality map as 3(a)) will also be looped in at the exact point as alternative 1 & 2 from the existing Delmas SAR Dryden 44kV powerline that is located in portion 3 of the farm Witlip 229 IR and runs parallel to alternative 1 & 2 towards the northerly direction passing through to portion 9 and 7 ( in which on the locality map is referred to as 17) of the farm Witlip 229 IR then it turns in the north westerly direction to portion 12 of the farm Middelburg 231 IR where it will be connected to the new proposed substation. This site is approximately 100m from alternative 2 and its coordinates are (26007'40.07"S & 28042'11.62" E). This alternative is located approximately 30m from the RDP houses. Alternative 3(a) transverse the wetland with the total distance of 0.75km and about 4 towers will be located in the wetland. However 3 towers will be located within the impacted part of the wetland. The powerline will also cross the sewage pipeline in portion 9 of the farm Witlip 229IR.

**Alternative 3b** (marked light blue in Figure 8) for the powerline (referred to in the locality map as 3b) will running on the same route as alternative 3 until it reaches portion 9 of the farm Witlip 229 IR where it curves to the north easterly direction. It then follows the same route as alternative 3 until it reaches the proposed substation. Its coordinates are (26007'59.73" & 28042'17.81"). This alternative will transverse a wetland with the total distance of 0.4km and about 2 towers will be located on the wetland.



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.

See Attached Appendix J

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.

**e) No-go alternative**

If the substation and the powerlines are not constructed, Victor Khanye Local Municipality will not be able to supply sufficient electricity to industrial customers and new housing developments. Thus the no go option is not preferred.

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

**3. PHYSICAL SIZE OF THE ACTIVITY**

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

**Alternative:**

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

**Size of the activity:**

Substation S1 - 10,000m <sup>2</sup>
Substation S2 - 10,000m <sup>2</sup>

or, for linear activities:

**Alternative:**

Alternative A1 (preferred activity alternative)  
 Alternative A2  
 Alternative A3  
 Alternative A4

**Length of the activity:**

Alignment A1 - 5,000m
Alignment A2 - 5,000m
Alignment A3(a) - 5,000m
Alignment A3(b) - 736m

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

**Alternative:**

Alternative A1 (preferred activity alternative)  
 Alternative A2  
 Alternative A3  
 Alternative A4

**Size of the site/servitude:**

	52m
	52m
	52m
	52m

**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

	NO
	m

Describe the type of access road planned:

The access roads planned for the proposed project is envisaged to be 500m (length) and ±6m (width). The access road will be required for access to the proposed Delmas North substation and it is indicated in orange in Figure 15. Temporary access road will be required to access the powerline in Delpark EXT.4 township, and dirt roads indicated in blue in figure 9 will used during the construction phase of the project and also attached in Appendix A.

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.

---

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



Figure 15: Locality Map Depicting Proposed Access Roads

## 5. LOCALITY MAP

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

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

### **6. LAYOUT/ROUTE PLAN**

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

The site or route plans must indicate the following:

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

### **7. SENSITIVITY MAP**

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

- watercourses;
- the 1:100 year flood line (where available or where it is required by 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.



# BASIC ASSESSMENT REPORT

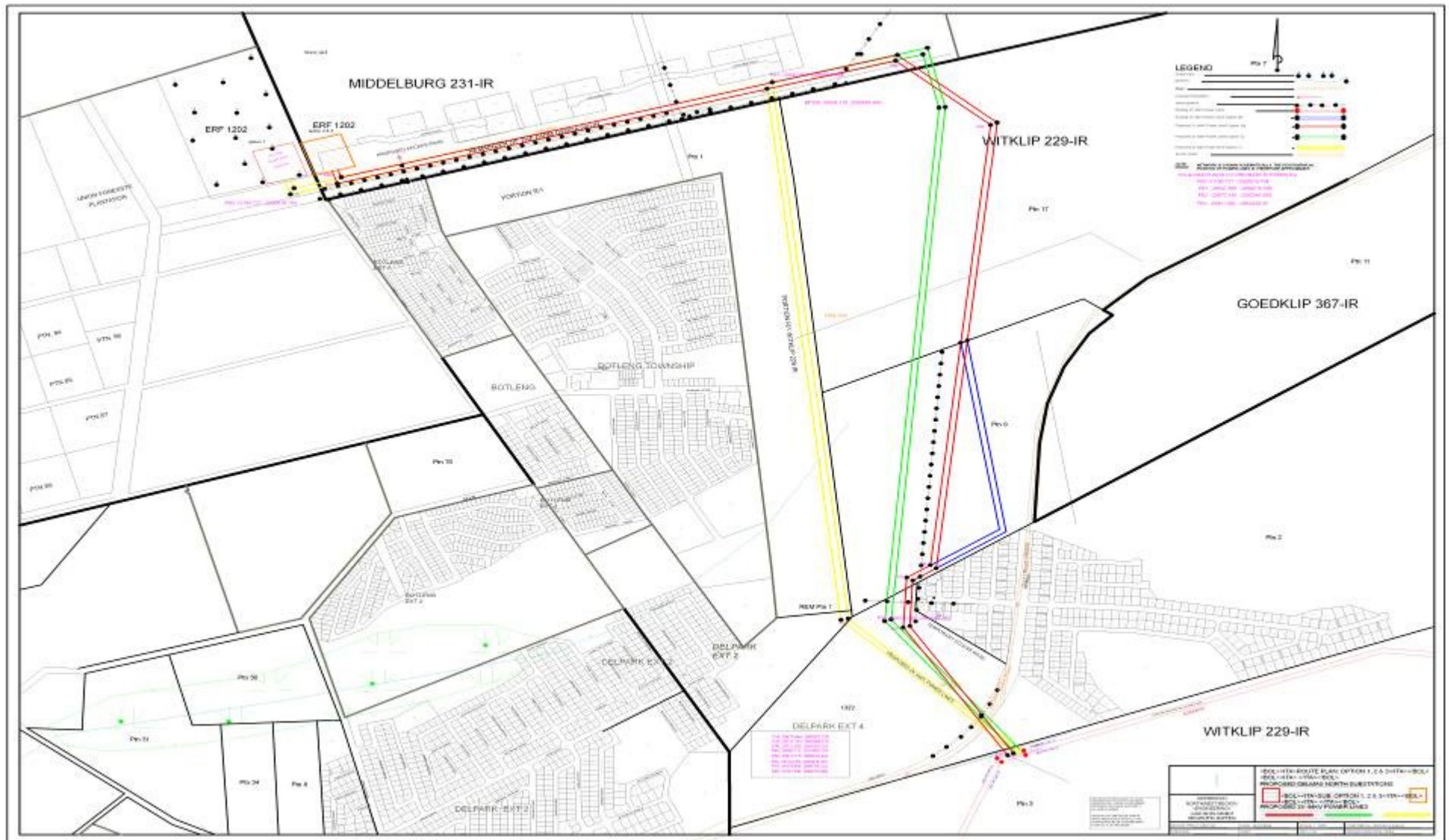


Figure 16: Locality Map

# BASIC ASSESSMENT REPORT



Figure 17: Wetland Occurrence and Sensitivity of the site

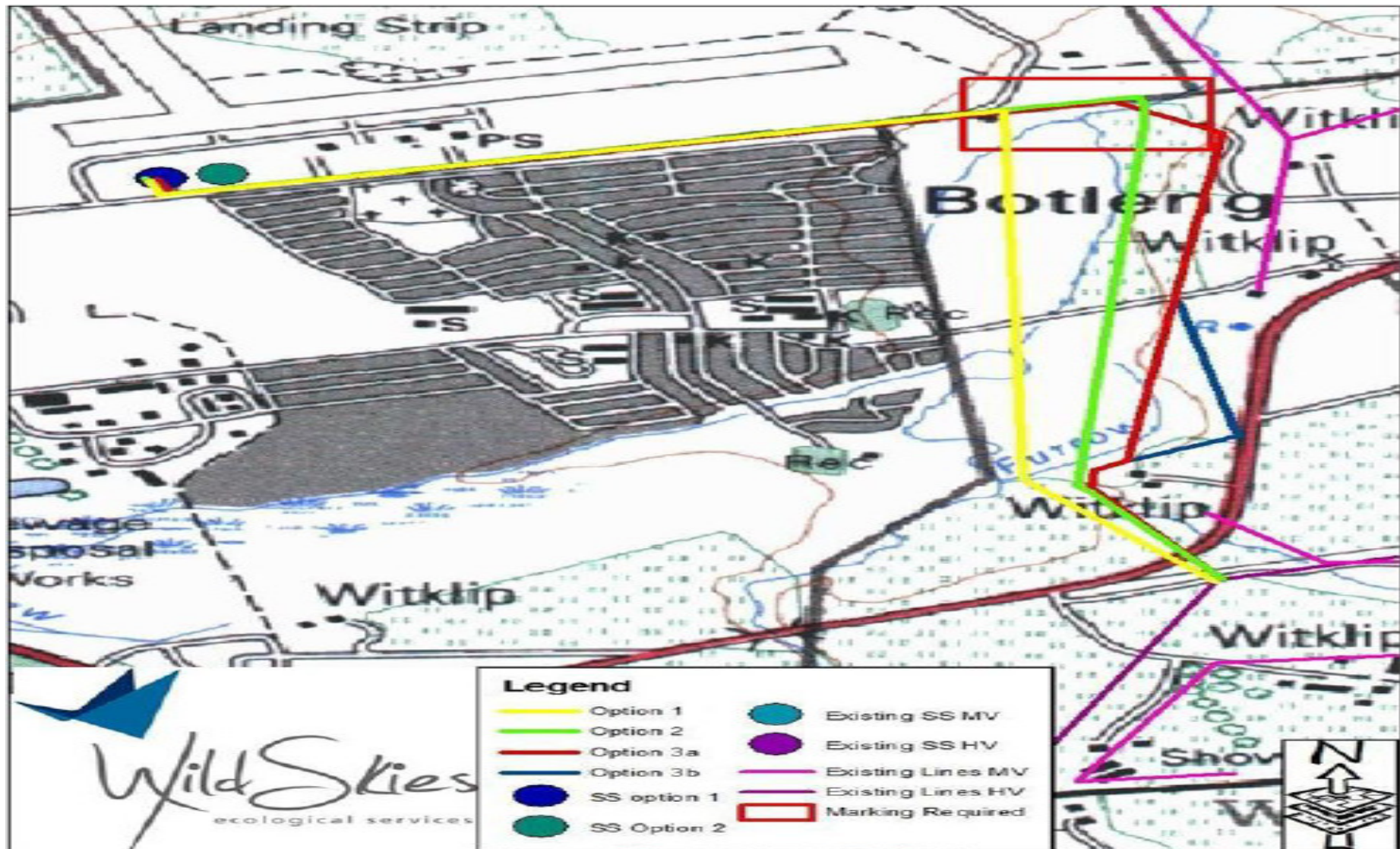


Figure 17: Avifauna Anti-collision Spans

10. ACTIVITY MOTIVATION

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

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>	YES	
Victor Khanye Local Municipality has secured a land for the proposed project.		
<b>2. Will the activity be in line with the following?</b>		
(a) Provincial Spatial Development Framework (PSDF)	YES	
(b) Urban edge / Edge of Built environment for the area	YES	
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	
According to the Victor Khanye Integrated Development Plan 2013/2014, in order to provide for the need for electricity for both residential and commercial developments, a new Delmas North substation is proposed to be in operational during the 2013/2014 financial year. Sufficient provision was made in the budget for the successful operation of the substation. Provision was made in the Capital Program.		
(d) Approved Structure Plan of the Municipality	YES	
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES	
(f) Any other Plans (e.g. Guide Plan)	YES	
<b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b>	YES	
<b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b>	YES	
The proposed development will be used to electrify the new housing developments for the Victor Khanye Local Municipality and provide power for industries located towards the north of Delmas.		

## BASIC ASSESSMENT REPORT

<p><b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	YES		
<p>There are adequate municipal services to cater for the project. In fact the proposed project is an addition to the current services rendered by the municipality.</p>			
<p><b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	YES	NO	Please explain
<p>The proposed project will form part of the infrastructures that will enable the municipality to render adequate energy (power supply) services within its jurisdiction. (See Appendix I)</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	YES	NO	Please explain
<p>The objective of the national development plan 2030 is for all South Africans to have social equity through expanded access to energy services with affordable tariffs and well-targeted and sustainable subsidies for needy households. Thus, the proposed is aimed at fulfilling this objective by providing power to the residents of Delmas.</p>			
<p><b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b></p>	YES	NO	Please explain
<p>There is substation already built next to the proposed site of the project.</p>			
<p><b>9. Is the development the best practicable environmental option for this land/site?</b></p>	YES		
<p><b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b></p>	YES		
<p><b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b></p>	YES		
<p><b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b></p>	YES	NO	Please explain
<p>The proposed project will result in positive impacts where power/electricity will be enjoyed by the residents and industries of Delmas.</p>			
<p><b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b></p>	NO		
<p><b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b></p>	YES	NO	Please explain
<p>The project has been categorised as SIP 10: Electricity transmission and distribution for all</p>			

## BASIC ASSESSMENT REPORT

<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain
The proposed project will provide undisturbed additional electricity to the country and local communities.	
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain
The proposed project will result in technical skill transfer to the local communities during the development phase of the project.	
<b>17. How does the project fit into the National Development Plan for 2030?</b>	Please explain
The objective of the national development plan 2030 is for all South Africans to have social equity through expanded access to energy services with affordable tariffs and well-targeted and sustainable subsidies for needy households. Thus, the proposed project is aimed at fulfilling this objective by providing power to the residents and industries of Delmas.	
<b>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</b>	
The proposed project has been undertaken according to section 24 of the National Environmental Management Act (NEMA) (No 107 of 1998) and the following aspects have been considered.	
<ul style="list-style-type: none"> <li>• An Application for the Environmental Authorisation was lodged to the Department of Environmental Affairs in June 2014;</li> <li>• Potential environmental impacts and risks associated with the project have been identified and assessed of their significance;</li> <li>• The public communities and authorities (Interested and Affected Parties) were consulted at the onset and throughout the lifecycle of the project; and</li> <li>• The principles of NEMA such as the “polluter pays principle” have also been considered within the Environmental Management Programme of the project, where Eskom and its appointed Contractor will be responsible for avoiding negative impacts and where not possible rectifying any damages caused in the environment.</li> </ul>	
<b>19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</b>	
Refer to above section 18.	

### 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
The Constitution of South Africa (Act No 108 of 1996)	Protection of human rights and environment of the study area.	National & Provincial	1996
National Environmental Management Act (Act No 107 of 1998)(as amended)	Protection of the environment of the study area and surroundings.	National & Provincial	1998
National Environmental Management: Waste Act (Act 59 of 2008) ( as amended)	Protection of the surrounding environment through efficient waste management by the appointed Contractor.	National & Provincial	2008
National Environmental Management : Air Quality Act ( Act No 39 of 2004)	Protection of air quality of the study through dust minimisation and the application of dust suppression measures.	National & Provincial	2004
National Heritage Resources Act (No 25 of 1999)	Protection of heritage resources surrounding the study area and those uncovered during the	National & Provincial	1999

## BASIC ASSESSMENT REPORT

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	development phase by reporting to the nearest heritage authority.		
National Environmental Management: Biodiversity Act (10 of 2004)	Protection of biodiversity features and where not possible relevant permits will need to sort by the Contractor.	National & Provincial	2004
National Water Act ( Act No 36 of 1998)	Protection of water resources and where not possible relevant permits/licences will need to sort by the Contractor.	National & Provincial	1998
National Road Traffic Act (No 93 of 1996)	The Contractor will obey traffic laws by driving at minimal speed approved by local authorities.	National & Provincial	1996
Occupational Health and Safety Act (No 85 of 1993)	Protection of workers on site through provision of Personal Protective Equipment's; Training and other health and safety amenities.	National & Provincial	1993
All relevant Provincial regulations, Municipal bylaws	The Contractor will obey and abide by provincial and municipal bylaws which are related to the proposed project.	Provincial and Local	

### 12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

#### a) Solid waste management

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

YES	NO
m <sup>3</sup>	

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

The quantities are not known at this stage.

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

The construction waste will be collected by the appointed Contractor and disposed at Delmas Landfill Site.

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

At Delmas Landfill Site.

Will the activity produce solid waste during its operational phase?

YES	NO
m <sup>3</sup>	

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

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

N/A

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

N/A

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

N/A

## BASIC ASSESSMENT REPORT

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

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?  YES  NO

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

Is the activity that is being applied for a solid waste handling or treatment facility?  YES  NO

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

### b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?  YES  NO

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

Will the activity produce any effluent that will be treated and/or disposed of on site?  YES  NO

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

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

If YES, provide the particulars of the facility:

Facility name:	N/A		
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

If YES, is it controlled by any legislation of any sphere of government?  YES  NO

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

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

During the construction phase, dust and vehicular emissions will be released as a result of earth moving machinery and trucks transporting construction material. The emissions will however, have short term impacts on the immediate surrounding areas which can be easily mitigated and thus the authorisation of such emissions will not be required.



**d) Waste permit**

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

	NO
--	----

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

**e) Generation of noise**

Will the activity generate noise?

YES	NO
-----	----

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

YES	NO
-----	----

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:

The movements of construction trucks, machinery and other construction activities will generate noise on site and surrounding communities. However, the noise will be of short term, localised and will last during the construction activities/phase of the project. The noise level is anticipated to be less than 50dBA as required by SANS 10103 and thus authorisation will not be required for the noise.

**13. WATER USE**

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

<input checked="" type="checkbox"/> Municipal	<input type="checkbox"/> Water board	<input type="checkbox"/> Groundwater	<input type="checkbox"/> River, stream, dam or lake	<input type="checkbox"/> Other	<input type="checkbox"/> The activity will not use water
---	--------------------------------------	--------------------------------------	---	--------------------------------	--

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

litres	
--------	--

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

YES	NO
-----	----

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

The water use licence is attached in Appendix J

**14. ENERGY EFFICIENCY**

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

The appointed Contractor will be advised to transport all construction materials on site at the same time where possible and the collection of waste material be conducted simultaneous with other activities to reduce the amount fuel usage for such transportation.

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

Diesel fuel will be used on site instead of electricity.

## 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? NO  
 If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

**Property description/physical address:**

<b>Province</b>	Mpumalanga Province
<b>District Municipality</b>	Nkangala District Municipality
<b>Local Municipality</b>	Victor Khanye Local Municipality
<b>Ward Number(s)</b>	-
<b>Farm name and number</b>	Witklip 229 IR, Middelburg 231 IR and Goedklip 275IR
<b>Portion number</b>	Witklip 229 IR (Portions 1, 9 and 17), Middelburg 231 IR (Portion 1) and Goedklip 275IR (Portion 11).
<b>SG Code</b>	See below

T	0	I	R	0	0	0	0	0	0	0	0	0	2	2	9	0	0	0	0	1
T	0	I	R	0	0	0	0	0	0	0	0	0	2	2	9	0	0	0	0	9
T	0	I	R	0	0	0	0	0	0	0	0	0	2	2	9	0	0	0	1	7
T	0	I	R	0	0	0	0	0	0	0	0	0	2	3	1	0	0	0	0	1
T	0	I	R	0	0	0	0	0	0	0	0	0	2	7	5	0	0	0	1	1

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

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

Open grassland and Agricultural land.
---------------------------------------

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

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

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Substation Sites

Alternative S1:



Alternative S2



Powerline Sites

Alternative A1



Alternative A2



Alternative A3a



Alternative A3b



2. LOCATION IN LANDSCAPE

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

Substation Sites

Alternative 1

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 type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

Alternative 2

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 type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

Powerline Sites

Alternative A1

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 checked="" type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

## BASIC ASSESSMENT REPORT

### Alternative A2

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 checked="" type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

### Alternative A3 (a)

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 checked="" type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

### Alternative A3 (b)

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 checked="" type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

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

	Alternative A1		Alternative A2		Alternative A3(a)		Alternative A3(b)	
	YES	NO	YES	NO	YES	NO	YES	NO
Shallow water table (less than 1.5m deep)	YES	NO	YES	NO	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO	YES	NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO	YES	NO	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO	YES	NO	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO	YES	NO	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO	YES	NO	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO	YES	NO	YES	NO	YES	NO
An area sensitive to erosion	YES	NO	YES	NO	YES	NO	YES	NO

## BASIC ASSESSMENT REPORT

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

### 4. GROUNDCOVER

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

#### SUBSTATION SITES

##### Alternative 1

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

##### Alternative 2

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

#### POWERLINE SITES

##### Alternative A1

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

##### Alternative A2

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

##### Alternative A3 (a)

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

## BASIC ASSESSMENT REPORT

### Alternative A3 (b)

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

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

### 5. SURFACE WATER

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

#### SUBSTATION SITES

##### Alternative 1

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

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

N/A

##### Alternative 2

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

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

N/A

## BASIC ASSESSMENT REPORT

### POWERLINE SITES

#### Alternative A1

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

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

Alternative A1 bisects a large portion valley bottom wetland and adjacent seasonally inundated seepage wetland. However, it must be noted that the channelled valley bottom has become severely degraded due to continual pollution of raw or untreated sewerage which enters into the system from a burst bulk sewer line situated within the seasonal wet zones. Uncontrolled livestock drinking of the polluted water as well as grazing and trampling within the seepage areas. Large sections of the valley bottom have been invaded by kikuyu (*Pennisetum clandestinum*\*). Furthermore, there are extensive illegal dumping activities within the valleybottom wetland.

#### Alternative A2

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

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

Alternative A2 bisects a large portion valley bottom wetland and adjacent seasonally inundated seepage wetland. However, it must be noted that the channelled valley bottom has become severely degraded due to continual pollution of raw or untreated sewerage which enters into the system from a burst bulk sewer line situated within the seasonal wet zones. Uncontrolled livestock drinking of the polluted water as well as grazing and trampling within the seepage areas. Large sections of the valley bottom have been invaded by kikuyu (*Pennisetum clandestinum*\*). Furthermore, there are extensive illegal dumping activities within the valleybottom wetland.

#### Alternative A3 (a)

Perennial River	YES	NO	UNSURE
Non-Perennial River	YES	NO	UNSURE
Permanent Wetland	YES	NO	UNSURE
Seasonal Wetland	YES	NO	UNSURE
Artificial Wetland	YES	NO	UNSURE

## BASIC ASSESSMENT REPORT

Estuarine / Lagoonal wetland	YES	NO	UNSURE
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If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Option 3a is situated towards the edge of a housing development to the east of the wetland.

### Alternative A3 (b)

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

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

Option 3b is situated towards the edge of a housing development to the east of the wetland and differs in only a certain section from Option 3a.

## 6. LAND USE CHARACTER OF SURROUNDING AREA

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

### SUBSTATION ALTERNATIVES

#### Alternative 1

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



## BASIC ASSESSMENT REPORT

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

N/A

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

N/A

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

N/A

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

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

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

### Alternative 2

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

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

N/A

## BASIC ASSESSMENT REPORT

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

N/A

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

N/A

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

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

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

### POWERLINE ALTERNATIVES

#### Alternative A1

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

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

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

## BASIC ASSESSMENT REPORT

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

N/A

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

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

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

### Alternative A2

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

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

N/A

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

N/A

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

N/A

## BASIC ASSESSMENT REPORT

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

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

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

### Alternative A3 (a)

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

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

N/A

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

N/A

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

N/A

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

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO
Core area of a protected area?	YES	NO
Buffer area of a protected area?	YES	NO

## BASIC ASSESSMENT REPORT

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

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

### Alternative A3 (b)

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

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

N/A

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

N/A

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

N/A

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

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

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

7. CULTURAL/HISTORICAL FEATURES

SUBSTATION SITES

**Alternative 1**

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

YES	NO
Uncertain	

During the survey a number of heritage sites were identified in the broader region of the study area namely cemeteries, graveyards and a monument. The cemeteries were specifically found near the proposed site of the substation.

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

The cemeteries were identified adjacent to the proposed substation site during the survey dating to the historic period. The proposed alternative site 1 of the substation is located inside the boundary of the cemeteries. This alternative may pose significant impacts on the cemeteries.

Will any building or structure older than 60 years be affected in any way?  
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	NO
YES	NO

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

**Alternative 2**

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

YES	NO
Uncertain	

During the survey a number of heritage sites were identified in the broader region of the study area namely cemeteries, graveyards and a monument. The cemeteries were specifically found near the proposed site of the substation.

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

The cemeteries were identified adjacent to the proposed substation site during the survey dating to historic period. The proposed alternative site 2 of the substation is located adjacent to the boundary of the cemeteries. However the proposed project will not impact on these cemeteries.

Will any building or structure older than 60 years be affected in any way?  
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	NO
YES	NO

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

**POWERLINE SITES**

**Alternative 1**

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

YES	NO
Uncertain	

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

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

YES	NO
YES	NO

**Alternative 2**

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

YES	NO
Uncertain	

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

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

YES	NO
YES	NO

**Alternative 3(a)**

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

YES	NO
Uncertain	

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

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

YES	NO
YES	NO

**Alternative 3(b)**

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

YES	NO
Uncertain	

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

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

YES	NO
YES	NO

**8. SOCIO-ECONOMIC CHARACTER**

**a) Local Municipality**

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

Level of unemployment:

According to the Delmas Integrated Development Plan, 2009-2010, approximately 76.5% of the population is unemployed, implying that the dependency and unemployment rate are very high.

Economic profile of local municipality:

Approximately 41% of the Delmas population was economically active, with 23.5% being employed. Approximately 76.5% of the population is unemployed, indicating that the dependency and unemployment rate are very high. The 33% of the employed population works in elementary occupations, followed by 17.9% in industrial occupations (plant and machine operators), and 13% in craft and trade occupations. 3.1% are professionals, of which 16.6% are managers, technicians and clerks. The average income per household is R2 286.61 per month, and 21.9% of the households reported to have no income. The majority of the people (48.4%) earn less than R800, which is considered as living below the poverty line. 23.4% earn between R801 and R1600, with only 28.1% earning more than R1600 per month. The relatively low-income levels are an indication of high poverty level and an increase in the dependency on social assistance e.g. housing subsidies and child grants. Recent analysis shows that the unemployment rate has increased. The comparison between 1998-2001 and 2001-2004 show that mining, manufacturing and finance have grown, with agriculture shedding noticeable employment. However, the rate of employment opportunities lost is stabilising (Delmas Integrated



## BASIC ASSESSMENT REPORT

Development Plan, 2009-2010.

Level of education:

According to the Delmas Integrated Development Plan, 2009-2010, Victor Khanye Local Municipality has a lower education level compared to Mpumalanga Province. About 25.9% of the population reported to have no formal schooling compared to 27.5% of Mpumalanga, 14% passed matric compared to 18.2% in Mpumalanga, 4.8% (1 540 people) possessed some higher qualification than matric, compared to 5.9% in Mpumalanga and 27.1% did not pass matric but have some secondary education. This is higher than that of Mpumalanga (26.6%).

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

What is the expected capital value of the activity on completion?	It is not known at this stage.
What is the expected yearly income that will be generated by or as a result of the activity?	It is not known at this stage.
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	It is not known at this stage.
What is the expected value of the employment opportunities during the development and construction phase?	It is not known at this stage.
What percentage of this will accrue to previously disadvantaged individuals?	It is not known at this stage.
How many permanent new employment opportunities will be created during the operational phase of the activity?	It is not known at this stage.
What is the expected current value of the employment opportunities during the first 10 years?	It is not known at this stage.
What percentage of this will accrue to previously disadvantaged individuals?	It is not known at this stage.

### 9. BIODIVERSITY

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

**BASIC ASSESSMENT REPORT**

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

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	The proposed powerline and substation bisect mainly modified (old lands) as well as limited natural areas (Mpumalanga Conservation Plan 2014).

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	10%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	30%	
Degraded (includes areas heavily invaded by alien plants)	30%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	30%	

c) Complete the table to indicate:

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

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

**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)**

Vegetation structure is generally accepted to be more critical in determining faunal habitat than actual plant composition. Therefore, the description of vegetation presented in this study concentrates on factors relevant to faunal species abundance and distribution, and does not give an exhaustive list of plant species which occur in the study area. The study area falls within the 2628 BA quarter degree grid cells. Vegetation composition in the area consists of a transitional zone between Eastern Highveld Grassland (Gm 12) as well as Rand Highveld Grassland (Gm 11). The majority of the powerline and the proposed substation sites are situated within the Eastern Highveld (Gm 12) vegetation unit with a section of alternative 2 and 3 alignments bisecting highly degraded Rand Highveld Grassland (Gm11) previously classified as Bankenveld or Rocky Highveld Grassland (45%), Sandy Highveld Grassland (LR 38).

Eastern Highveld Grassland

It is characterised by short dense grass dominated by the usual highveld grass composition (*Aristida*, *Digitaria*, *Eragrostis*, *Themeda*, *Tristachya* etc) with small rocky outcrops with wiry, sour grasses and some woody species (*Acacia caffra*, *Celtis africana*, *Diospyros lycioides* subs *lyciodes*, *Parina capensis*, *Protea caffra*, *P. welwithchii* and *Searsia magaliesmontanum*). It is distributed in Mpumalanga and Gauteng Province on the plains between Belfast in the east and the eastern side of Johannesburg in the west and extending southwards to Bethal, Ermelo and west of Piet Retief. It generally occurs in high rainfall areas on leached soils. The predominant rock types are shales and sandstones of the Vryheid and Volksrust Formations (Ecca Group, Karoo Sequence), giving rise to deep, red to yellow, sandy soils. It is also considered to be Endangered and is suitable for crop production. However, approximately 44% of this vegetation has been transformed by cultivation, plantation, mines and urbanization, resulting in a poor conservation status. In addition, the grassland has been impacted on by anthropomorphic activities as well as current human activities.

Rand Highveld Grassland

It is rich in species wiry, sour grassland alternating with low, sour shrubland on rocky outcrops and steeper slopes. Most common grasses on the plains belong to the genera *Themeda*, *Eragrostis*, *Heteropogon* and *Elionurus*. High diversity of herbs, many of which belong to the Asteraceae, is also a typical feature. The grassland is distributed in Gauteng, North-West, Free State and Mpumalanga Provinces. In areas between rocky ridges from Pretoria to Witbank, extending onto ridges in the Stoffberg and Roosenekal regions as well as Krugersdorp centered in the vicinity of Derby and Potchestroom, extending southwards and north-eastwards. It occurs on the Quartzite ridges of the Witwatersrand Supergroup and the Pretoria Groups as well as the Selons River Formation of the Rooiberg Group, supporting soils of various quality (shallow Glenrosa and Mispah forms especially on rocky ridges), typical Ba, Bc, Bd and Ib land types. It is considered to be endangered and the conservation target is 24%. Only 1 % is statutorily conserved. Almost half has been transformed mostly by cultivation, plantations, urbanization or dam building. Cultivation may also have had an impact on additional portion of the surface area of the unit where old lands are currently classified as grasslands in land-cover classifications and poor land management has led to degradation of significant portions of the remainder of this unit. Furthermore, the area has been heavily impacted on by extensive overgrazing along the proposed alignments.

## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT AND NOTICE

<b>Publication name</b>	It is will be provided in the final report.	
<b>Date published</b>	See above	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
<b>Date placed</b>	See above	

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

### 2. DETERMINATION OF APPROPRIATE MEASURES

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

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

<b>Title, Name and Surname</b>	<b>Affiliation/ key stakeholder status</b>	<b>Contact details (tel number or e-mail address)</b>
Yolanda Segami	Victor Khanye Local Municipality	yolandas@victorkhanyelm.gov.za
Xolisile Nkosi	Victor Khanye Local Municipality	xolisilen@victorkhanyelm.gov.za
Les Niewenhuisen	Victor Khanye Local Municipality	lesn@victorkhanyelm.gov.za

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

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

### 3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

<b>Summary of main issues raised by I&amp;APs</b>	<b>Summary of response from EAP</b>
No issues rose thus far.	No response provided thus far.

### 4. COMMENTS AND RESPONSE REPORT

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

## 5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Mpumalanga Department of Human Settlements	Ms Amanda Pohl	013 766 6087	013 766 8441	apohl@mpg.gov.za	Private Bag X11328 Nelspruit 1200
Economic Development, Environment and Tourism	Ms Charity Mothimunye	013 692 5843		cnmothimunye@mpg.gov.za	Corner Rosemead & Ryna Road Klipfontein (next to Midas) Witbank
Department of Rural Development & Land Reform	Mr. Harold Skhosana			hdskhosana@ruraldevelopment.gov.za	Hitex Building 1, First Floor 23 Corners Rhodes & Botha Street Witbank 1035

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

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

## 6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

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

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

## SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 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.

## BASIC ASSESSMENT REPORT

### 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.

IMPACT ASSESSMENT DESCRIPTIVE CRITERIA		
Nature	Include a descriptive sentence	
Probability	Categories 1 – 5	
	1 Improbable (less than 24% chance of occurring)	
	2 Probable (25 – 49%)	
	3 Likely (50 – 69%)	
	4 Very likely (70 – 89%)	
5 Definite (90 – 100%)		
Frequency	Categories 1 – 5	
	1 Very rare to remote (once or twice a decade)	
	2 Unusual to occasional (once or twice every 5 years)	
	3 Frequent (a few times a month)	
	4 Very frequent (a few times a week, to daily)	
5 Continuous (daily to a significant percentage of every day)		
Extent	Categories 1 – 5	
	1 Footprint / site	
	2 Local	
	3 Regional	
	4 National	
5 International (trans-boundary)		
Duration	Categories 1 – 5	
	1 Short (few days to a few months, less than a phase)	
	2 Short (few months, or less than a phase in total)	
	3 Medium (a few years, significant part of a phase)	
	4 Long (lifespan of development (i.e. all of operation))	
5 Permanent		
Intensity	Categories 1 – 5	
	1 Very low – natural processes not affected	
	2 Low – natural processes slightly affected	
	3 Medium – natural processes continue but in a modified manner	
	4 Medium-high – natural processes are modified significantly	
5 High – natural processes disturbed significantly so that they cease to occur (temporarily / permanently)		
Significance	<b>Significance = P + F + E + D + I</b> Minimum value of 5, maximum of 25 Status determines if positive / negative	
	<b>Any positive value</b>	<b>No impact</b> 1. High to low consequence, probability not an issue as positive, <b>no mitigation required</b>
	1– 5	<b>Low</b> 2. Low consequence, probably, <b>minimal mitigation may be required</b>
	6 to 10	<b>Medium</b>

## BASIC ASSESSMENT REPORT

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		3. Medium consequence, probably, <b>mitigation is advised / preferred</b>
	11 to 15	<b>Medium-high</b> 4. Medium to high consequence, probably to very probable, <b>mitigation is necessary</b>
	16 to 20	<b>High</b> 5. High consequence, probably / definite, <b>mitigation is essential</b>
	21 to 25	<b>Extreme</b> 6. Very high consequence, definite, <b>fatal flaw!</b>

## BASIC ASSESSMENT REPORT

### 1(a). IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN

#### SUBSTATIONS

Alternative 1 (Preferred)			
DIRECT IMPACTS			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
Site alternative 1 is situated on a portion of land adjacent to the eastern boundary of the Botleng Cemetery. This site will not result in any significant impacts when compared to site alternative 2. Thus from an environmental impact perspective this site is considered the preferred alternative.	<b>Duration:</b> Short Term (1) <b>Extent:</b> Footprint site (1) <b>Frequency:</b> Unusual (2) <b>Probability:</b> Probably (2) <b>Intensity:</b> Low (2) <b>Significance Rating: (8)</b> <b>Medium</b>	Care need to be taken by the Contractor during the construction process to avoid significant impacts. The recommendations provided in the EMPr need to be implemented.	<b>Duration:</b> Short Term (1) <b>Extent:</b> Footprint site (1) <b>Frequency:</b> Very rare (1) <b>Probability:</b> Improbably (1) <b>Intensity:</b> Very Low (1) <b>Significance Rating: (5)</b> <b>Low</b>
INDIRECT IMPACTS			
<b>None</b>			
CUMULATIVE IMPACTS			
<b>None</b>			

Alternative 2			
DIRECT IMPACTS			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
Substation site alternative 1 is situated within the Botleng Cemetery boundary. From a social perspective this alternative will have a significant negative impact due to the sentimental value / cultural significance association of the community to the cemetery. This is especially relevant where family members have been buried. Furthermore, the substation development within the cemetery will require an approval of a permit from	<b>Duration:</b> Short Term (1) <b>Extent:</b> Localised (2) <b>Frequency:</b> Frequent (3) <b>Probability:</b> Probably (2) <b>Intensity:</b> Low (2) <b>Significance Rating: (10)</b> <b>Medium</b>	<ul style="list-style-type: none"> <li>Care need to be taken by the Contractor during the construction process to avoid significant impacts. The recommendations provided in the EMPr need to be implemented.</li> <li>The consideration of site alternative 1 as the preferred option.</li> </ul>	<b>Duration:</b> Short Term (1) <b>Extent:</b> Footprint site (1) <b>Frequency:</b> Very rare (1) <b>Probability:</b> Improbably (1) <b>Intensity:</b> Low (2) <b>Significance Rating: (6)</b> <b>Low</b>



## BASIC ASSESSMENT REPORT

Alternative 2			
DIRECT IMPACTS			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
the SAHRA or relevant provincial heritage authority. Based on the above it can be concluded that due to the nature of the impacts associated with this alternative, that site alternative 1 should be considered the preferred site for the proposed substation.			
INDIRECT IMPACTS			
None			
CUMULATIVE IMPACTS			
None			

### POWERLINES

Alternative 3(b) Preferred			
DIRECT IMPACTS			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
Route Alternative 3(b) is situated along the less sensitive environment such as transformed grasslands.	<b>Duration:</b> Short Term (1) <b>Extent:</b> Footprint site (1) <b>Frequency:</b> Unusual (2) <b>Probability:</b> Probably (2) <b>Intensity:</b> Low (2) <b>Significant Rating: (8)</b> <b>Medium</b>	<ul style="list-style-type: none"> <li>Care need to be taken by the Contractor during the construction process to avoid significant impacts. The recommendations provided in the EMPr need to be implemented.</li> <li>It is recommended that this alternative be considered during construction as it will result in less/insignificant environmental impacts.</li> </ul>	<b>Duration:</b> Short Term (1) <b>Extent:</b> Footprint site (1) <b>Frequency:</b> Very rare (1) <b>Probability:</b> Improbably (1) <b>Intensity:</b> Very Low (1) <b>Significance Rating: (5)</b> <b>Low</b>
INDIRECT IMPACTS			
None			
CUMULATIVE IMPACTS			
None			

## BASIC ASSESSMENT REPORT

Alternative 1			
Alternative 2			
Alternative 3(a)			
DIRECT IMPACTS			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
Route Alternative 1 runs parallel to the valley bottom wetland and bisects a wider section of the wetland.	<b>Duration:</b> Long Term (4) <b>Extent:</b> Local (2) <b>Frequency:</b> Very frequent (4) <b>Probability:</b> Definite (5) <b>Intensity:</b> Medium high (4)	<ul style="list-style-type: none"> <li>These alternatives are not recommended to be used for the construction of the powerline from the environmental point of view.</li> <li>Care need to be taken by the Contractor during the construction process to avoid significant impacts. The recommendations provided within this report, WULA and the EMPr need to be implemented to minimise the impacts.</li> </ul>	<b>Duration:</b> Medium Term (3) <b>Extent:</b> Local (2) <b>Frequency:</b> Frequent (3) <b>Probability:</b> Likely(3) <b>Intensity:</b> Medium (3)
Route Alternative 2 of the powerline is situated within the valley bottom wetland for the majority of the alignment.	<b>Significant Rating (19)</b>		<b>Significant Rating (14)</b>
Route Alternative 3(a) also runs parallel to the valley bottom wetland and adjacent to existing housing.	<b>High</b>		<b>Medium High</b>
INDIRECT IMPACTS			
<b>None</b>			
CUMULATIVE IMPACTS			
<b>None</b>			

### SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO SUBSTATION ALTERNATIVE DURING THE PLANNING AND DESIGN PHASE

IMPACTS	Alternative 1 (Preferred): Without Mitigation	Alternative 1 (Preferred): With Mitigation	Alternative 2: Without Mitigation	Alternative 2: With Mitigation
DIRECT IMPACTS				
Heritage & Social	8	5	10	6
INDIRECT IMPACTS				
<b>None</b>				
CUMULATIVE IMPACTS				
<b>None</b>				

## BASIC ASSESSMENT REPORT

### SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO POWERLINE ALTERNATIVE DURING THE PLANNING AND DESIGN PHASE

IMPACTS	Alternative 1 (Preferred): Without Mitigation	Alternative 1 (Preferred): With Mitigation	Alternative 2: Without Mitigation	Alternative 2: With Mitigation	Alternative 3(a): Without Mitigation	Alternative 3 (a): With Mitigation	Alternative 3(b): Without Mitigation	Alternative 3(b): With Mitigation
<b>DIRECT IMPACTS</b>								
Wetlands, & Social	19	14	19	14	19	14	8	5
<b>INDIRECT IMPACTS</b>								
<b>None</b>								
<b>CUMULATIVE IMPACTS</b>								
<b>None</b>								

### 1(b) IMPACTS THAT MAY RESULT FROM CONSTRUCTION- SUBSTATIONS

Alternative 1 (Preferred)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<b>DIRECT IMPACTS</b>			
<b>1. Construction Related Impacts</b>  Movements of trucks, delivery of construction material, oil leakages from machinery and vehicles, disposal of construction waste etc. will constitute the main impacts during construction.	<b>Duration:</b> Medium Term (3) <b>Extent:</b> Localised (2) <b>Frequency:</b> Very Frequent (4) <b>Probability:</b> Likely (3) <b>Intensity:</b> Low (2) <b>Significance Rating: (14)</b> <b>Medium–High</b>	<ul style="list-style-type: none"> <li>Construction related (solid &amp; hazardous) and general waste must be collected regularly from the site and disposed of at an appropriate registered landfill site.</li> <li>Management of oil and other spillages and leakages must be minimized.</li> <li>Construction waste must not be stored more than 30 days on site.</li> <li>Dust suppression measures must be implemented by the appointed Contract to minimise dust nuisance in the surrounding communities.</li> </ul>	<b>Duration:</b> Short Term (1) <b>Extent:</b> Localised (2) <b>Frequency:</b> Un-usual (2) <b>Probability:</b> Improbable (1) <b>Intensity:</b> Low (1) <b>Significance Rating: (7)</b> <b>Medium</b>
<b>2. Ecology</b>  During the construction phase of the project there will be disturbance and destruction of habitats. The clearing of vegetation for construction purposes will expose the soil and	<b>Duration:</b> Long Term (4) <b>Extent:</b> Localised (2) <b>Frequency:</b> Very Frequent (4) <b>Probability:</b> Definite (5) <b>Intensity:</b> Low (2)	<ul style="list-style-type: none"> <li>The Contractor need to maintain close site supervision. The construction workers must be limited to the construction site in order to avoid destruction and disturbance of vegetation that is not affected by construction activities.</li> <li>No servitudes should be constructed within any wetland habitat as well as a 20m grassland buffer</li> </ul>	<b>Duration:</b> Short Term (1) <b>Extent:</b> Localised (2) <b>Frequency:</b> Frequent (3) <b>Probability:</b> Likely (3) <b>Intensity:</b> Low (2)

## BASIC ASSESSMENT REPORT

Alternative 1 (Preferred)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMP)	Significant of Impact After Mitigation
result in soil erosion.	<b>Significance Rating: (17) High</b>	from the outer edge of the temporary wet zone. <ul style="list-style-type: none"> <li>No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site.</li> <li>The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the construction activities must not be disturbed.</li> </ul>	<b>Significant Rating (11) Medium High</b>
<b>3. Heritage :</b> During the construction phase might disturbance of heritage artefacts uncovered.	Duration: Medium Term (3) Extent: Localised (2) Frequency: Very Frequent (4) Probability: Likely (3) Intensity: Low (2) <b>Significance Rating: (14) Medium-High</b>	<ul style="list-style-type: none"> <li>Should heritage objects and artefacts be uncovered during the construction process, construction work need to stop and the uncovered objects be reported to the nearest museum.</li> </ul>	Duration: Short Term (1) Extent: Localised (2) Frequency: Very Rare (1) Probability: Probably (2) Intensity: Low (1) <b>Significance Rating: (7 ) Medium</b>
<b>4. Wetland:</b> None			
<b>5. Avifauna :</b>			
<b>INDIRECT IMPACTS</b>			
None			
<b>CUMULATIVE IMPACTS</b>			
None			

Alternative 2			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMP)	Significant of Impact After Mitigation
<b>DIRECT IMPACTS</b>			
<b>1. Construction Related Impacts</b>  Movements of trucks, delivery of construction material, oil leakages from machinery and vehicles, disposal of construction waste etc. will constitute the main impacts	Duration: Medium Term (-3) Extent: Localised (-2) Frequency: Very Frequent (-4) Probability: Likely (-3) Intensity: Low (-2)	<ul style="list-style-type: none"> <li>Construction related (solid &amp; hazardous) and general waste must be collected regularly from the site and disposed of at an appropriate registered landfill site.</li> <li>Management of oil and other spillages and leakages must be minimized.</li> <li>Construction waste must not be stored more than 30 days on site.</li> </ul>	Duration: Short Term (-1) Extent: Localised (-2) Frequency: Un-usual (-2) Probability: Improbable (-1) Intensity: Low (-1)

## BASIC ASSESSMENT REPORT

Alternative 2			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMP)	Significant of Impact After Mitigation
during construction.	<b>Significance Rating: (14)</b> <b>Medium-High</b>	<ul style="list-style-type: none"> <li>Dust suppression measures must be implemented by the appointed Contract to minimise dust nuisance in the surrounding communities.</li> </ul>	<b>Significance Rating: (7)</b> <b>Medium</b>
<b>6. Ecology</b>  During the construction phase of the project there will be disturbance and destruction of habitats. The clearing of vegetation for construction purposes will expose the soil and result in soil erosion.	<b>Duration:</b> Long Term (4) <b>Extent:</b> Localised (2) <b>Frequency:</b> Very Frequent (4) <b>Probability:</b> Definite (5) <b>Intensity:</b> Low (2) <span style="background-color: yellow;"><b>Significance Rating: (17)</b></span> <b>High</b>	<ul style="list-style-type: none"> <li>The Contractor need to maintain close site supervision. The construction workers must be limited to the construction site in order to avoid destruction and disturbance of vegetation that is not affected by construction activities.</li> <li>No servitudes should be constructed within any wetland habitat as well as a 20m grassland buffer from the outer edge of the temporary wet zone.</li> <li>No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site.</li> <li>The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the construction activities must not be disturbed.</li> </ul>	<b>Duration:</b> Short Term (1) <b>Extent:</b> Localised (2) <b>Frequency:</b> Frequent (3) <b>Probability:</b> Likely (3) <b>Intensity:</b> Low (2) <span style="background-color: yellow;"><b>Significance Rating: (11)</b></span> <b>Medium High</b>
<b>7. Heritage</b>  During the construction phase there might be disturbance of the heritage sites uncovered. Furthermore this site is located closer to the cemeteries.	<b>Duration:</b> Long Term (4) <b>Extent:</b> Localised (2) <b>Frequency:</b> Very Frequent (4) <b>Probability:</b> Very likely (4) <b>Intensity:</b> Low (2) <span style="background-color: yellow;"><b>Significant Rating: (16)</b></span> <b>High</b>	<ul style="list-style-type: none"> <li>This site is not preferred from heritage point of view to the cemeteries that are located in close proximity to the site.</li> <li>Should heritage objects and artefacts be uncovered during the construction process, construction work need to stop and the uncovered objects be reported to the nearest museum.</li> </ul>	<b>Duration:</b> Short Term (1) <b>Extent:</b> Localised (2) <b>Frequency:</b> Unusual(2) <b>Probability:</b> Probable (2) <b>Intensity:</b> Low (1) <span style="background-color: #92d050;"><b>Significant Rating: 8</b></span> <b>Medium</b>
<b>2. Wetland</b>			
None			
<b>3. Avifauna</b>			
None			
<b>INDIRECT IMPACTS</b>			
None			
<b>CUMULATIVE IMPACTS</b>			
None			

## BASIC ASSESSMENT REPORT

### POWERLINES

Alternative 3(b) Preferred			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<b>DIRECT IMPACTS</b>			
<p><b>1. Construction Related Impacts</b></p> <p>Movements of trucks, delivery of construction material, oil leakages from machinery and vehicles, disposal of construction waste etc. will constitute the main impacts during construction.</p>	<p><b>Duration:</b> Medium Term (3)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Very Frequent (4)  <b>Probability:</b> Likely (3)  <b>Intensity:</b> Low (2)  <b>Significance Rating: (14)</b>  <b>Medium-High</b></p>	<ul style="list-style-type: none"> <li>Construction related (solid &amp; hazardous) and general waste must be collected regularly from the site and disposed of at an appropriate registered landfill site.</li> <li>Management of oil and other spillages and leakages must be minimized.</li> <li>Construction waste must not be stored more than 30 days on site.</li> <li>Dust suppression measures must be implemented by the appointed Contract to minimise dust nuisance in the surrounding communities.</li> </ul>	<p><b>Duration:</b> Short Term (1)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Un-usual (2)  <b>Probability:</b> Improbable (1)  <b>Intensity:</b> Low (1)  <b>Significance Rating: (7)</b>  <b>Medium</b></p>
<p><b>2. Ecology</b></p> <p>During the construction phase of the project there will be disturbance and destruction of habitats. The clearing of vegetation for construction purposes will expose the soil and result in soil erosion.</p>	<p><b>Duration:</b> Long Term (4)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Very Frequent (4)  <b>Probability:</b> Definite (5)  <b>Intensity:</b> Low (2)  <b>Significance Rating: (17)</b>  <b>High</b></p>	<ul style="list-style-type: none"> <li>The Contractor need to maintain close site supervision. The construction workers must be limited to the construction site in order to avoid destruction and disturbance of vegetation that is not affected by construction activities.</li> <li>No servitudes should be constructed within any wetland habitat as well as a 20m grassland buffer from the outer edge of the temporary wet zone.</li> <li>No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site.</li> <li>The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the construction activities must not be disturbed.</li> </ul>	<p><b>Duration:</b> Short Term (1)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Frequent (3)  <b>Probability:</b> Likely (3)  <b>Intensity:</b> Low (2)  <b>Significant Rating: (11)</b>  <b>Medium High</b></p>
<p><b>3. Heritage :</b></p> <p>There were no sites or features identified during the survey on alternatives 1, 2 and 3(a) of the powerline. Thus there are no impacts anticipated.</p>	<p><b>Duration:</b> Short term Low (1)  <b>Extent:</b> Footprint (1)  <b>Frequency:</b> Very rare (1)  <b>Probability:</b> Improbably (1)  <b>Intensity:</b> Very low (1)  <b>Significance Rating: (5)</b>  <b>Low</b></p>	<ul style="list-style-type: none"> <li>It is recommended that should they be found, they must be reported to the nearest museum.</li> </ul>	<p>N/A</p>

## BASIC ASSESSMENT REPORT

Alternative 3(b) Preferred			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMP)	Significant of Impact After Mitigation
<p><b>4. Wetland:</b></p> <p><b><u>Placing of towers in wetlands:</u></b></p> <p>a) The construction of towers would result in the physical disturbance of the wetland soils.</p> <p>b) Impacts on wetland soil and vegetation through the compaction of wetland soils, the trampling and subsequent erosion.</p> <p>c) Presence of machinery and leakage of concrete could result in the alteration of the sub-surface hydrology of the wetland by creating conduits for the movement of water in the wetland.</p> <p>d) The uncontrolled interaction of construction workers with watercourses and wetlands that could lead to the pollution of the water in these drainage systems.</p> <p>e) The lack of provision of adequate sanitary facilities may pollute the wetland.</p> <p>f) The incorrect mixing (batching) of cement could lead to siltation and contamination of wetlands.</p> <p>g) Inadequate stormwater management and soil stabilisation measures in cleared areas could lead to erosion that may lead to siltation of nearby wetlands.</p> <p>h) The placing and use of access</p>	<p><b>Duration:</b> Long Term (4)</p> <p><b>Extent:</b> Localised (2)</p> <p><b>Frequency:</b> Very Frequent (4)</p> <p><b>Probability:</b> Likely (-3)</p> <p><b>Intensity:</b> Low (2)</p> <p style="background-color: yellow;"><b>Significance Rating: (15)</b></p> <p style="background-color: yellow;"><b>Medium-High</b></p>	<ul style="list-style-type: none"> <li>An engineer must ensure that proper construction techniques in terms of tower foundations in shrinking and swelling (vertic) clay soils as found in the wetland are identified. This is to ensure that during the operational lifespan of the power line that the tower does not become damaged by the movement within the soils in which it is located.</li> <li>It is recommended that construction activities take place in winter season as people and machinery access into the wetland during this time will be much easier and much less likely to be associated with damage to wetland soils, and to wetland vegetation.</li> <li>Access to the towers on the boundary of the housing development should preferably be through the housing development.</li> <li>The machinery and vehicles should be prohibited from accessing the wetland.</li> <li>Construction of permanent access roads should be prohibited.</li> </ul>	<p><b>Duration:</b> Short Term (1)</p> <p><b>Extent:</b> Localised (2)</p> <p><b>Frequency:</b> Frequent (3)</p> <p><b>Probability:</b> Likely (3)</p> <p><b>Intensity:</b> Low (2)</p> <p style="background-color: yellow;"><b>Significance Rating: (11)</b></p> <p style="background-color: yellow;"><b>Medium-High</b></p>

## BASIC ASSESSMENT REPORT

Alternative 3(b) Preferred			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<p>roads for construction traffic across wetlands and drainage lines may lead to the erosion of wetland soils and which may lead to further development of gully (donga) erosion.</p> <p>i) Construction of accesses across watercourses may impede the natural flow of water (especially if access is required across running water). This would alter the hydrology of the watercourse and potentially act as a barrier to the movement of aquatic biota.</p> <p>j) Uncontrolled access of vehicles through wetlands, including moist grasslands can cause a significant adverse impact on the hydrology and soil structure of these areas through rutting (which can act as flow conduits) and through the compaction of soil.</p>			
<p><b>5. Avifauna</b></p> <p>a) Avifaunal habitat (wetland) destruction by construction activities.</p> <p>b) Electrocutation of avifaunal species.</p> <p>c) Collision of avifauna due to the wetland attracting many bird species.</p>	<p><b>Duration:</b> Long Term (4)</p> <p><b>Extent:</b> Localised (2)</p> <p><b>Frequency:</b> Very Frequent (4)</p> <p><b>Probability:</b> Likely (3)</p> <p><b>Intensity:</b> Low (2)</p> <p style="background-color: yellow;"><b>Significance Rating: (15)</b></p> <p style="background-color: yellow;"><b>Medium-High</b></p>	<ul style="list-style-type: none"> <li>The construction activities must be limited within the wetland area in order to minimise the disturbance of the wetland.</li> <li>Anti-collision marking need to be installed within the powerline as directed by Figure 17.</li> </ul>	<p><b>Duration:</b> Short Term (1)</p> <p><b>Extent:</b> Localised (2)</p> <p><b>Frequency:</b> Frequent (3)</p> <p><b>Probability:</b> Likely (3)</p> <p><b>Intensity:</b> very Low (1)</p> <p style="background-color: #90ee90;"><b>Significant Rating :10</b></p> <p style="background-color: #90ee90;"><b>Medium</b></p>
INDIRECT IMPACTS			
<p><b>Avifauna</b></p> <p>Quality of electricity supply disturbance due to faulting.</p>	<p><b>Duration:</b> Medium Term (-3)</p> <p><b>Extent:</b> Localised (-2)</p> <p><b>Frequency:</b> Very Frequent (-4)</p>	<p>It is recommended that steel monopole structures be used for the project to minimise the faulting and disturbance of electricity supply.</p>	<p><b>Duration:</b> Short Term (-1)</p> <p><b>Extent:</b> Localised (-2)</p> <p><b>Frequency:</b> Unusual (-2)</p>



## BASIC ASSESSMENT REPORT

Alternative 3(b) Preferred			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
	<b>Probability:</b> Likely (-3) <b>Intensity:</b> Low (-2) <b>Significance Rating: (14)</b> <b>Medium-High</b>		<b>Probability:</b> Likely (-3) <b>Intensity:</b> Very Low (-1) <b>Significance Rating: (-9)</b> <b>Medium</b>
<b>Wetland:</b> The lack of provision of adequate sanitary facilities and ablutions on the servitude may lead to the direct or indirect faecal pollution of wetlands.	<b>Duration:</b> Long Term (-4) <b>Extent:</b> Localised (-2) <b>Frequency:</b> Very Frequent (-4) <b>Probability:</b> Likely (-3) <b>Intensity:</b> Low (-2) <b>Significance Rating: (15)</b> <b>Medium-High</b>	<ul style="list-style-type: none"> <li>The Contractor need to provide adequate ablution facilities for construction workers. These facilities need to be placed 100m away from the wetland areas.</li> <li>Ablution facilities need to be serviced regularly at least once a week.</li> </ul>	<b>Duration:</b> Short Term (-1) <b>Extent:</b> Localised (-2) <b>Frequency:</b> Unusual (-2) <b>Probability:</b> Likely (-3) <b>Intensity:</b> Very Low (-1) <b>Significance Rating: (-9)</b> <b>Medium</b>
CUMULATIVE IMPACTS			
None			

Alternative 1			
Alternative 2			
Alternative 3(a)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
DIRECT IMPACTS			
<b>1. Construction Related Impacts</b>  Movements of trucks, delivery of construction material, oil leakages from machinery and vehicles, disposal of construction waste etc. will constitute the main impacts during construction.	<b>Duration:</b> Medium Term (-3) <b>Extent:</b> Localised (-2) <b>Frequency:</b> Very Frequent (-4) <b>Probability:</b> Likely (-3) <b>Intensity:</b> Low (-2) <b>Significance Rating: (14)</b> <b>Medium-High</b>	<ul style="list-style-type: none"> <li>Construction related (solid &amp; hazardous) and general waste must be collected regularly from the site and disposed of at an appropriate registered landfill site.</li> <li>Management of oil and other spillages and leakages must be minimized.</li> <li>Construction waste must not be stored more than 30 days on site.</li> <li>Dust suppression measures must be implemented by the appointed Contract to minimise dust nuisance in the surrounding communities.</li> </ul>	<b>Duration:</b> Short Term (-1) <b>Extent:</b> Localised (-2) <b>Frequency:</b> Un-usual (-2) <b>Probability:</b> Improbable (-1) <b>Intensity:</b> Low (-1) <b>Significance Rating: (7)</b> <b>Medium</b>
<b>2. Ecology</b>	<b>Duration:</b> Long Term (4) <b>Extent:</b> Localised (2)	<ul style="list-style-type: none"> <li>The Contractor need to maintain close site supervision. The construction workers must be limited</li> </ul>	<b>Duration:</b> Short Term (1) <b>Extent:</b> Localised (2)

## BASIC ASSESSMENT REPORT

Alternative 1			
Alternative 2			
Alternative 3(a)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
During the construction phase of the project there will be disturbance and destruction of habitats. The clearing of vegetation for construction purposes will expose the soil and result in soil erosion.	<b>Frequency:</b> Very Frequent (4) <b>Probability:</b> Definite (5) <b>Intensity:</b> Low (2) <b>Significance Rating: (17)</b> <b>High</b>	to the construction site in order to avoid destruction and disturbance of vegetation that is not affected by construction activities. <ul style="list-style-type: none"> <li>No servitudes should be constructed within any wetland habitat as well as a 20m grassland buffer from the outer edge of the temporary wet zone.</li> <li>No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site.</li> <li>The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the construction activities must not be disturbed.</li> </ul>	<b>Frequency:</b> Frequent (3) <b>Probability:</b> Likely (3) <b>Intensity:</b> Low (2) <b>Significant Rating: (11)</b> <b>Medium High</b>
<b>3. Heritage</b>  There were no sites or features identified during the survey on alternatives 1, 2 and 3(a) of the powerline. Thus there are no impacts anticipated.	<b>Duration:</b> Short term Low (-1) <b>Extent:</b> Footprint (-1) <b>Frequency:</b> Very rare (-1) <b>Probability:</b> Improbably (-1) <b>Intensity:</b> Very low (-1) <b>Significance Rating: (-5)</b> <b>Low</b>	<ul style="list-style-type: none"> <li>It is recommended that should they be found, they must be reported to the nearest museum.</li> </ul>	N/A
<b>4. Wetland:</b>  <b>Placing of towers in wetlands:</b>  a) The construction of towers would result in the physical disturbance of the wetland soils. b) Impacts on wetland soil and vegetation through the compaction of wetland soils, the trampling and subsequent erosion. c) Presence of machinery and	<b>Duration:</b> Permanent (5) <b>Extent:</b> Localised (2) <b>Frequency:</b> Very Frequent (4) <b>Probability:</b> Very Likely (4) <b>Intensity:</b> Medium (3) <b>Significance Rating: (18)</b> <b>High</b>	<ul style="list-style-type: none"> <li>An engineer must ensure that proper construction techniques in terms of tower foundations in shrinking and swelling (vertic) clay soils as found in the wetland are identified. This is to ensure that during the operational lifespan of the power line that the tower does not become damaged by the movement within the soils in which it is located.</li> <li>It is recommended that construction activities take place in winter season as people and machinery access into the wetland during this time will be much easier and much less likely to be associated with damage to wetland soils, and to wetland vegetation.</li> <li>Access to the towers on the boundary of the housing</li> </ul>	<b>Duration:</b> Medium Term (2) <b>Extent:</b> Localised (2) <b>Frequency:</b> Frequent (3) <b>Probability:</b> Likely (3) <b>Intensity:</b> Low (2) <b>Significance Rating: (12)</b> <b>Medium-High</b>

## BASIC ASSESSMENT REPORT

Alternative 1			
Alternative 2			
Alternative 3(a)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMP)	Significant of Impact After Mitigation
<p>leakage of concrete, could result in the alteration of the sub-surface hydrology of the wetland by creating conduits for the movement of water in the wetland.</p> <p>d) The uncontrolled interaction of construction workers with watercourses and wetlands that could lead to the pollution of the water in these drainage systems.</p> <p>e) The lack of provision of adequate sanitary facilities may pollute the wetland.</p> <p>f) The incorrect mixing (batching) of cement could lead to siltation and contamination of wetlands.</p> <p>g) Inadequate stormwater management and soil stabilisation measures in cleared areas could lead to erosion that may lead to siltation of nearby wetlands.</p> <p>h) The placing and use of access roads for construction traffic across wetlands and drainage lines may lead to the erosion of wetland soils and which may lead to further development of gulley (donga) erosion.</p> <p>i) Construction of accesses across watercourses may impede the natural flow of water (especially if access is required across running water). This would alter</p>		<p>development should preferably be through the housing development.</p> <ul style="list-style-type: none"> <li>• The machinery and vehicles should be prohibited from accessing the wetland.</li> <li>• Construction of permanent access roads should be prohibited.</li> </ul>	

## BASIC ASSESSMENT REPORT

Alternative 1			
Alternative 2			
Alternative 3(a)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<p>the hydrology of the watercourse and potentially act as a barrier to the movement of aquatic biota.</p> <p>j) Uncontrolled access of vehicles through wetlands, including moist grasslands can cause a significant adverse impact on the hydrology and soil structure of these areas through rutting (which can act as flow conduits) and through the compaction of soil.</p>			
<p><b>6. Avifauna</b></p> <p>a) Avifaunal habitat (wetland) destruction by construction activities.</p> <p>b) Electrocutation of avifaunal species.</p> <p>c) Collision of avifauna due to the wetland attracting many bird species.</p>	<p><b>Duration:</b> Long Term (4)</p> <p><b>Extent:</b> Localised (2)</p> <p><b>Frequency:</b> Very Frequent (4)</p> <p><b>Probability:</b> Likely (3)</p> <p><b>Intensity:</b> Low (2)</p> <p style="background-color: yellow;"><b>Significance Rating: (15)</b></p> <p style="background-color: yellow;"><b>Medium-High</b></p>	<ul style="list-style-type: none"> <li>The construction activities must be limited within the wetland area in order to minimise the disturbance of the wetland.</li> <li>Anti-collision marking need to be installed within the powerline as directed by Figure 17.</li> </ul>	<p><b>Duration:</b> Short Term (1)</p> <p><b>Extent:</b> Localised (2)</p> <p><b>Frequency:</b> Frequent (3)</p> <p><b>Probability:</b> Likely (3)</p> <p><b>Intensity:</b> very Low (1)</p> <p style="background-color: #90EE90;"><b>Significant Rating :10</b></p> <p style="background-color: #90EE90;"><b>Medium</b></p>
INDIRECT IMPACTS			
<p><b>Avifauna</b></p> <p>Quality of electricity supply disturbance due to faulting.</p>	<p><b>Duration:</b> Medium Term (-3)</p> <p><b>Extent:</b> Localised (-2)</p> <p><b>Frequency:</b> Very Frequent (-4)</p> <p><b>Probability:</b> Likely (-3)</p> <p><b>Intensity:</b> Low (-2)</p> <p style="background-color: yellow;"><b>Significance Rating: (14)</b></p> <p style="background-color: yellow;"><b>Medium-High</b></p>	<p>It is recommended that steel monopole structures be used for the project to minimise the faulting and disturbance of electricity supply.</p>	<p><b>Duration:</b> Short Term (-1)</p> <p><b>Extent:</b> Localised (-2)</p> <p><b>Frequency:</b> Unusual (-2)</p> <p><b>Probability:</b> Likely (-3)</p> <p><b>Intensity:</b> Very Low (-1)</p> <p style="background-color: #90EE90;"><b>Significance Rating: (-9)</b></p> <p style="background-color: #90EE90;"><b>Medium</b></p>
<p><b>Wetland:</b></p> <p>The lack of provision of adequate sanitary facilities and ablutions on the</p>	<p><b>Duration:</b> Long Term (-4)</p> <p><b>Extent:</b> Localised (-2)</p>	<ul style="list-style-type: none"> <li>The Contractor need to provide adequate ablution facilities for construction workers. These facilities need to be placed 100m away from the wetland areas.</li> </ul>	<p><b>Duration:</b> Short Term (-1)</p> <p><b>Extent:</b> Localised (-2)</p>

## BASIC ASSESSMENT REPORT

Alternative 1			
Alternative 2			
Alternative 3(a)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
servitude may lead to the direct or indirect faecal pollution of wetlands.	<b>Frequency:</b> Very Frequent (-4) <b>Probability:</b> Likely (-3) <b>Intensity:</b> Low (-2) <b>Significance Rating: (15)</b> <b>Medium-High</b>	<ul style="list-style-type: none"> <li>Ablution facilities need to be serviced regularly at least once a week.</li> </ul>	<b>Frequency:</b> Unusual (-2) <b>Probability:</b> Likely (-3) <b>Intensity:</b> Very Low (-1) <b>Significance Rating: (-9)</b> <b>Medium</b>
CUMULATIVE IMPACTS			
None			

### SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO SUBSTATION ALTERNATIVE DURING THE CONSTRUCTION PHASE

IMPACTS	Alternative 1 (Preferred): Without Mitigation	Alternative 1 (Preferred): With Mitigation	Alternative 2: Without Mitigation	Alternative 2: With Mitigation
DIRECT IMPACTS				
Construction Related Impacts	14	7	14	7
Ecology	17	11	17	11
Heritage	14	7	16	8
Wetland	0	0	0	0
Avifauna	0	0	0	0
<b>Total</b>	<b>45</b>	<b>25</b>	<b>47</b>	<b>26</b>
INDIRECT IMPACTS				
None				
CUMULATIVE IMPACTS				
None				

## BASIC ASSESSMENT REPORT

### SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO POWERLINE ALTERNATIVE DURING THE CONSTRUCTION PHASE

IMPACTS	Alternative 1 (Preferred): Without Mitigation	Alternative 1 (Preferred): With Mitigation	Alternative 2: Without Mitigation	Alternative 2: With Mitigation	Alternative 3(a): Without Mitigation	Alternative 3 (a): With Mitigation	Alternative 3(b): Without Mitigation	Alternative 3(b): With Mitigation
<b>DIRECT IMPACTS</b>								
Construction Related Impacts	14	7	14	7	14	7	8	5
Ecology	17	11	17	11	17	11	17	11
Heritage	5	0	5	0	5	0	5	0
Wetland	18	12	18	12	18	12	15	11
Avifauna	15	10	15	10	15	10	14	9
<b>Total</b>	<b>69</b>	<b>40</b>	<b>69</b>	<b>40</b>	<b>69</b>	<b>40</b>	<b>59</b>	<b>36</b>
<b>INDIRECT IMPACTS</b>								
Avifauna	14	9	14	9	14	9	14	9
Wetland	15	9	15	9	15	9	15	9
<b>Total</b>	<b>29</b>	<b>18</b>	<b>29</b>	<b>18</b>	<b>29</b>	<b>18</b>	<b>29</b>	<b>18</b>
<b>CUMULATIVE IMPACTS</b>								
<b>None</b>								

## BASIC ASSESSMENT REPORT

### 1 (c) IMPACT THAT MAY RESULT FROM OPERATION

Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<b>DIRECT IMPACTS</b>			
<p>a) Residual impacts that arose during the construction phase and incorrect rehabilitation of construction-related access.</p> <p>b) Clearing of the servitude through the use of herbicides may also pollute nearby watercourses if not properly undertaken.</p> <p>c) During the inspection of the servitude impacts may occur on the watercourses and wetland.</p> <p>d) There are no significant impacts anticipated during the operational phase of the project.</p>	<p><b>Duration:</b> Long Term (-4)</p> <p><b>Extent:</b> Localised (-2)</p> <p><b>Frequency:</b> Very Frequent (-4)</p> <p><b>Probability:</b> Likely (-3)</p> <p><b>Intensity:</b> Low (-2)</p> <p><b>Significance Rating: (15)</b></p> <p><b>Medium-High</b></p>	<ul style="list-style-type: none"> <li>Care should be taken at all times to prevent any potential impacts that might result from operation activities. Eskom must monitor the rehabilitation activities to prevent residual impacts.</li> <li>The substation and powerline should be monitored at least twice a year for their operating condition together with the fencing and its apparatus such as fire extinguishers, fences, transformers and emergency numbers.</li> <li>Should there be any oil spills it should be cleaned immediately and disposed of at the appropriate hazardous landfill site. The surrounding communities should be encouraged to report any incidence that occurs at the substation by using the emergency number provided and/or by reporting to the municipality.</li> <li>Plants that are not interfering with the operation of the substation and powerline during the maintenance must not be disturbed. The substation should be fitted with the fire extinguisher which will be easily accessible in case of fire.</li> <li>Powerline should be fitted with a bird perch at the top of the pole. This will provide additional safe perching space to birds and will draw them away from the dangerous areas on the insulators. The earth wire of the powerline should be fitted with Bird Flight Diverters where it passes the sensitive areas such as the valley bottom wetland and rocky hill areas.</li> </ul>	<p><b>Duration:</b> Short Term (-1)</p> <p><b>Extent:</b> Localised (-2)</p> <p><b>Frequency:</b> Unusual (-2)</p> <p><b>Probability:</b> Likely (-3)</p> <p><b>Intensity:</b> Very Low (-1)</p> <p><b>Significance Rating: (-9)</b></p> <p><b>Medium</b></p>
<b>INDIRECT IMPACTS</b>			
<b>None</b>			
<b>CUMULATIVE IMPACTS</b>			
<b>None</b>			

## BASIC ASSESSMENT REPORT

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### 1(d) IMPACTS THAT MAY RESULT FROM DECOMMISSIONING

#### Potential Impacts

The closure and decommissioning of the substation and powerline is unknown at this stage. However when closure and decommissioning does take place a separate EIA process will be conducted to address impacts that arises as a result of closure.

#### No Go Option

Should the status quo prevail, Victor Khanye Local Municipality will not meet the growing demand for electricity in the general area due to rate of development (mostly industrial and residential). Furthermore, electricity supply is urgently required for various low cost housing development initiatives (current and future) implemented and planned by the Victor Khanye Local Municipality.



## BASIC ASSESSMENT REPORT

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

### 1. 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.

#### SUBSTATION

##### Alternative 1 (preferred alternative)

Substation site 1 is preferred for the following reasons:

- It is situated adjacent to the Botleng Cemetery Boundary.
- Extensive illegal dumping occurs along this site with degraded vegetation.

It also poses insignificant impacts.

##### Alternative 2

Substation site 2 is the least preferred site as it will result in the significant social impacts at the cemetery in terms of the sentimental value associated with people and cemeteries.

#### POWERLINES

##### Alternative 3(b) Preferred

Alternative 3(b) of the powerline is the preferred alternatives from the environmental perspective as the majority of the alignment occurs within transformed grasslands such as agricultural lands, degraded grasslands and road reserves. This alignment crosses the shortest stretch of wetland, will have the fewest number of towers located within the wetland, and as the line is located immediately adjacent to the boundary of the DELPARK EXT 1 & 2 township will have both towers located within an existing impacted area of the wetland, thus not being likely to create any further impact on the wetland at these tower locations. Due to these factors mentioned above, Option 3b is the most preferred alternative when compared with the other three alternatives, and it is strongly recommended that this alignment be considered as the preferred alignment, as it will have the least impacts (birds, habitat destruction etc.) on the wetland and the general environment.

##### Alternative 1

##### Alternative 2

##### Alternative 3(a)

Alternatives 1 and 2 of the powerline are located along the valley bottom wetland. These alternatives will result in significant environmental impacts. Alternative 3(a) although it will have one tower placed on a more impacted part of the wetland to the north of the Delpark township, most of the alignment will result in a less significant environmental impacts when compared to alternatives 1 and 2.

#### No-go alternative (compulsory)

If the substation and the powerlines are not constructed as proposed, Victor Khanye Local Municipality will not be able to supply sufficient electricity to industrial customers and new developments planned within its jurisdiction. Thus, the no go option is not preferred.

**SECTION E. RECOMMENDATION OF PRACTITIONER**

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

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

N/A

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 findings of the specialist studies undertaken within the Basic Assessment provided an assessment of both benefits and potential negative impacts anticipated as a result of the proposed project. The findings conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented throughout the project's life cycle. .

Accordingly, **Substation Alternative 1** and **Powerline Alternative 3(b)** have emerged as the preferred options from an environmental perspective and it is recommended that these alternatives be authorized. Royal HaskoningDHV and the specialist sub-consultants are of the opinion that the impacts identified for the project can be successfully mitigated. It is recommended that the Basic Assessment Report and the Environmental Management Programme must be easily accessible to guide the Contractor and the rest of the project team in ascertaining that there is no further damage or harm to the environment.

Is an EMP attached?

YES	NO
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The EMP 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.

**Sibongile Gumbi**

NAME OF EAP

SIGNATURE OF EAP

September 2014

DATE

## **SECTION F: APPENDIXES**

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix D1: Avifauna Report

Appendix D2: Ecological Report

Appendix D3: Heritage Report

Appendix D4: Wetland Report

Appendix E: Public Participation

Appendix E1: Site Notices

Appendix E2: Background Information Document

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