



# PROPOSED CONSTRUCTION OF 132KV DIPOMPONG AND TSWAING SUBSTATIONS AND THEIR ASSOCIATED POWER LINES

**FINAL BASIC ASSESSMENT REPORT (AMENDED)**

**September 2014**

**DEA Reference Number: DEA REF NO: 14/12/16/3/3/1/1038**

**NEAS Reference Number: DEA/EIA/00014744/2013**

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# **PROPOSED CONSTRUCTION OF 132KV DIPOMPONG AND TSWAING SUBSTATIONS AND THEIR ASSOCIATED POWER LINES**

**This Draft Basic Assessment was amended by:**

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Ms. Nkhensani Khandlhela heads the project team and acts as the Project Manager for all phases of the project. Nkhensani holds a M.Sc. (Geographical Sciences). She is an Environmental Scientist with 6 years of experience. Nkhensani specialises in Integrated Environmental Management (IEM), Environmental Impact Assessments (EIAs), rural development, land use issues and socio-economic surveys. Nkhensani has been a project scientist for various EIA's in KwaZulu Natal, Eastern Cape and Gauteng provinces of South Africa. Nkhensani is currently a Project Manager and Environmental Scientist at Envirolution Consulting.

**This report was reissued for public review as of 29 September 2014 to 30 October 2014**





**environmental affairs**

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

(For official use only)

**File Reference Number:**

**Application Number:**

**Date Received:**


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

**Kindly note that:**

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

15. Shape files (shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

## SECTION A: ACTIVITY INFORMATION

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

YES	NO
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If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

### 1. PROJECT DESCRIPTION

#### a) Describe the project associated with the listed activities applied for

##### 1.1 BACKGROUND

Eskom Holdings SOC Limited is proposing to construct the 132kV Dipompong and Tswaing Substations and their associated overhead Power Lines to strengthen the network supplying Winterveldt area near Soshanguve within Gauteng and North-West Provinces.

In terms of the NEMA EIA Regulations, 2010: GN544 promulgated under Chapter 5 of the National Environmental Management Act (Act 107 of 1998) ("NEMA"), and published in Government Gazette 33306 on 18 June 2010; a Basic Assessment is required for this project. Therefore, in order to be able to develop the proposed parcel of land, application for environmental authorisation must again be obtained.

Eskom Holdings SOC Ltd has appointed Envirolution Consulting as independent environmental consultants, to undertake the BAR process. The main objective of the BAR is to identify and assess potential environmental impacts associated with the proposed project, and to compile appropriate mitigation measures. An application was submitted to DEA and acknowledgement of receipt was received on 15 March 2013. The following reference numbers were allocated:

- NEAS Reference: DEA/EIA/00014744/2013
- DEA Reference : 14/12/16/3/3/1/860

After submission of the Draft Basic Assessment Report, DEA allocated the project a new reference number:

- DEA Reference : 14/12/16/3/3/1/1038

The draft Basic Assessment report has been re issued for public review following an advise from the Department of Environmental Affairs during the review of the Final Basic Assessment, see letter from DEA and further correspondence on the submission attached as Appendix J. DEA during the review of the Final BAR advised that additional alternatives be considered for the project and these alternatives be assessed for the purposes of this BA. As a result, alternative routes were identified in an around the project area for further investigations and assessment by specialists. This Basic Assessment will thus include findings of the specialists on additional alternatives that were identified following the submissions from DEA. The report has also considered other alternatives (Technology alternatives)

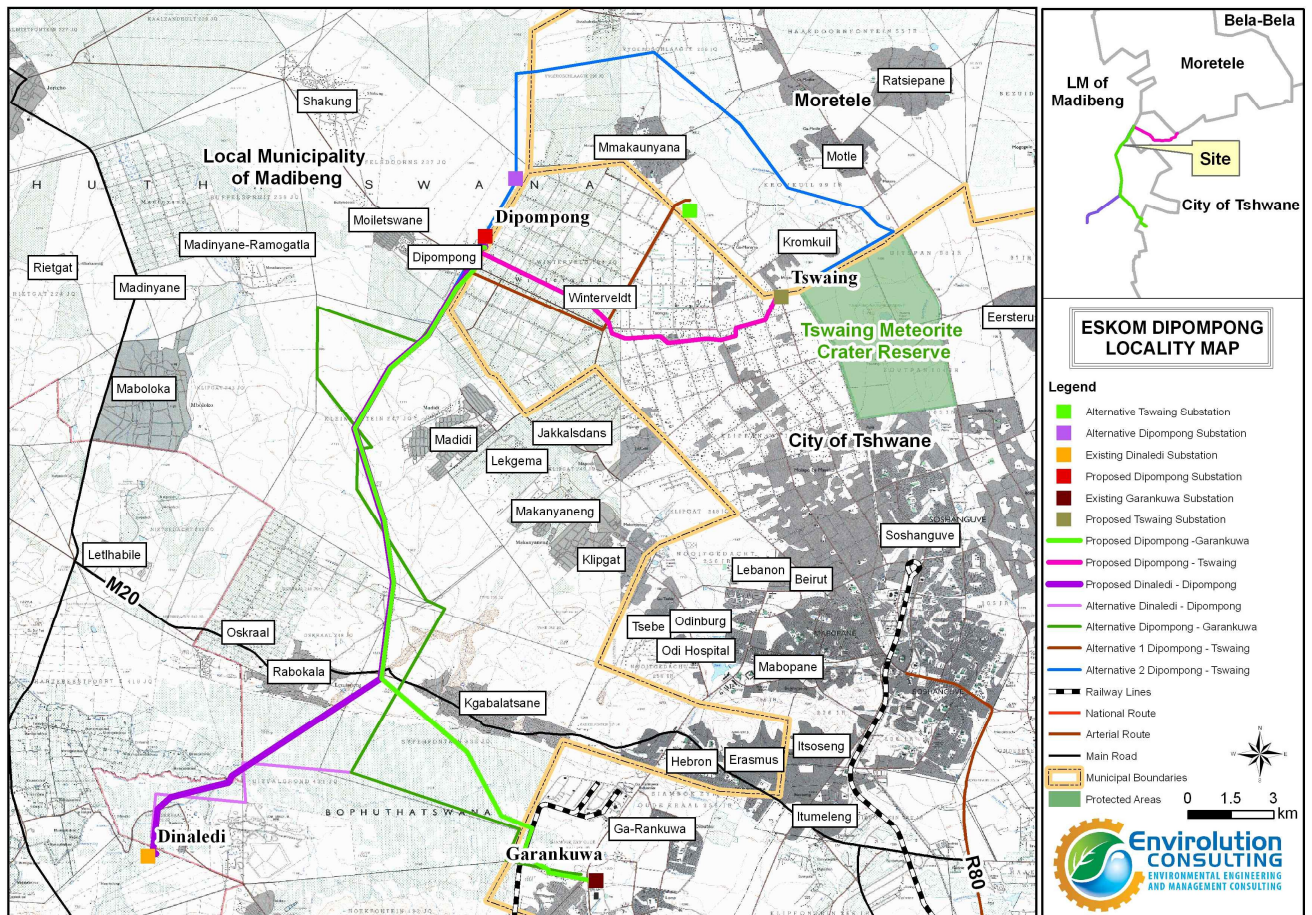
##### 1.2 PROJECT LOCALITY

The proposed powerline routes and proposed substations are situated across two municipalities: the City of Tshwane Metropolitan Municipality (Gauteng Province) and the Local Municipality of Madibeng (North West

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Province) although only a small portion of the proposed powerline is located within the City of Tshwane. The Garankuwa substation is located approximately 10km north of the N4 Highway and adjacent to the M21 road. The Dinaledi substation is located approximately 3.7Km North-East of the town of Brits. The proposed Tswaing substation is located about 700m west of the north-western corner of the Tswaing Crater Reserve. The Dipompong substation is located on the eastern border of the Dipompong settlement. The Dinaledi – Dipompong route starts in the west at the Dinaledi Substation and proceeds north east where it then shares the route with the GaRankuwa-Dipompong route northwards towards the Dipompong Substation. The GaRankuwa-Dipompong route starts in the east close to the town of Ga-Rankuwa and proceed north west where it then shares the route with the Dinaledi – Dipompong route northwards towards the Dipompong substation. From the Dipompong substation the Dipompong –Tswaing route proceeds eastwards towards the Tswaing substation near the Tswaing Meteorite Crater Reserve.

The proposed powerlines will connect the GaRankuwa substation and the Dinaledi substation in the south with the proposed new Dipompong substation and Tswaing substation in the northern extent of the proposed powerlines (Figure 1). The route is situated within the City of Tshwane Metropolitan Municipality (Gauteng Province) as well as within the Madibeng Local Municipality (North West Province) and within the quarter degree squares 2528AC, 2527BD and 2527DB. For the purposes of this BA, four alternative routes were considered and three alternatives were identified for the location of the proposed Dipompong and Tswaing substations.



**Figure 1: Locality of the proposed powerline routes and proposed substations**

### **1.3 Route selection and Description**

#### **1.3.1 Route Selection**

The preferred routing option indicated below was identified during extensive site and routing investigations undertaken by Eskom representatives. Topography, hydrology, land ownership and servitude negotiation, line maintenance, line constructability, access, economic, social and environmental aspects were considered during the viability assessment of the route. Based on this assessment the preferred option was identified as the most viable routing option. The area is of high density residential areas, wetlands, as well as numerous subdivisions of land, therefore it limits the potential alternatives for the power line route alignment. Therefore three routes with the associated alternatives are proposed as indicated in **Figure 1**.

#### **1.3.2 Route Description**

As has already been discussed, three powerlines and associated alternatives are proposed to connect the existing GaRankuwa substation and Dinaledi substation with the proposed new Dipompong substation and Tswaing substation. These routes are briefly described as follows:

#### ***Proposed Powerline Routes and Alternatives***

**(a) *Proposed Ga-Rankuwa to Dipompong (Light Green)***

This line is proposed to connect the existing Ga-Rankuwa substation with the proposed new Dipompong substation about 22km north west thereof (Figure 1). The route aligns north-westward for the initial 9.5km, where it meets the proposed Dinaledi-Dipompong route. From point of meeting the routes align north and north eastward for about 20km to reach the proposed Dipompong substation. This route passes through residential areas and land portions of vacant land. As part of this route, Eskom will need to acquire servitude of about 31m wide from the Garankuwa substation to the point where the powerline will meet with the Dinaledi to Dipompong powerline. From the point of meeting with the Dinaledi to Dipompong, the two powerlines will run parallel to each other and Eskom will need to acquire 55 m wide servitude to be utilized up to the proposed Dipompong substation.

**(b) *Alternative Garankuwa Dipompong (Dark Green)***

The alternative route follows the same general direction as the Dinaledi-Dipompong line, but has more turns and is about 36km longer. Both routes align through residential areas and portions of vacant land.

**(c) *Proposed Dinaledi-Dipompong - Purple***

This route is proposed to connect the existing Dinaledi substation with the proposed new Dipompong substation about 23km north east thereof. The Dinaledi substation is situated in close proximity to the Rankotia settlement and about 3.5km north-east of the town of Brits. For the initial 9.5km, the route aligns north-eastward where it meets the proposed Ga-Rankuwa-Dipompong route. From here the routes align north and north eastward for about 20km to reach the proposed Dipompong substation (Figure 1). This route passes through residential areas and land portions of vacant land. Eskom will need to acquire servitude of about 31m wide in order to use this route from the Dinaledi substation to the point where the powerline will meet with the Garankuwa to Dipompong powerline. From this meeting point the two powerlines will run parallel to each other and Eskom will need to acquire 55m wide servitude to be utilized up to the proposed Dipompong substation.

**(d) Alternative Dinaledi Dipompong (Light Pink)**

The alternative route follows the same direction with the proposed Dinaledi Dipompong route, with more turns and is longer at about 36km. This route aligns through residential areas and portions of vacant land.

**(e) Proposed Dipompong-Tswaing - Pink**

This route will connect the proposed Dipompong substation with the Tswaing substation about 10km east thereof. This route traverse mainly through small holdings of Winterveldt. Eskom will need to acquire servitude of about 31m wide in order to use this route.

**(f) Dipompong Tswaing Alternative 1 - Brown**

The route runs south-westward from the proposed Dipompong substation and turns eastward after about 1km. After approximately 5km, the Alternative 1 turns northwards towards the alternative Tswaing substation. This route is about 11km long.

**(g) Dipompong Tswaing Alternative 2 - Blue**

From Dipompong alternative substation locality, the route travels northwards for about 5km, hereafter it turns eastwards and eventually south-west to the proposed Tswaing substation. This route is about 22km long.

**1.3.3 Proposed substations**

Two new substations and two alternatives substations are proposed in order to create capacity for the expected load within the Winterveldt area.

**(a) Proposed Dipompong substation (red)**

This substation is proposed in the Winterveldt at the western edge of the Dipompong settlement. The proposed site situated about 23km north-west of the Ga-Rankuwa substation at the edge of historic small holdings in the Winterveldt. A cemetery is situated directly north of the proposed substation site. For the construction of the proposed substation, Eskom requires land of approximately 100m x 150m (1,5ha) in size.

**(b) Dipompong substation alternative (purple)**

This substation alternative is located along the Dipompong Tswaing route to the north of the proposed Dipompong substation and to the north-west of Dipompong settlement. It is located approximately 1.5 km from the proposed Dipompong substation.

**(c) Proposed Tswaing substation (khaki)**

This substation is proposed to be developed about 700m west of the north-western corner of the Tswaing Meteorite Crater Reserve at the eastern edge of small holdings in the Winterveldt. For the construction of the proposed substation, Eskom requires land of approximately 100m x 150m (1,5ha) in size.

**(d) Tswaing alternative substation (green)**

An alternative to Tswaing substation is proposed approximately 4.5km north-west of proposed Tswaing substation and directly north of the historic small holdings in the Winterveldt.



## 1.4 Environmental Setting

The study site is located in the Winterveldt situated in the north-western part of Tshwane (formerly known as Pretoria) in the Odi and Moretele magisterial districts of North West and Gauteng Provinces. Winterveldt is a peri-urban area covering a total of **120km<sup>2</sup>**. The area includes various residential areas such as Ga-Rankuwa, as well as expanding informal settlements.

### 1.4.1 Climate

The study area receives summer rainfall and winters are typically very dry with frequent frost. The southern extent of the proposed development the mean monthly maximum and minimum is 35.3°C (January) and -3.3°C (June) (Mucina & Rutherford, 2006). Frost is less frequent in the northern extent of the proposed development (e.g. the Tswaing-area) with high temperatures recorded already in early summer. Annual rainfall varies from about 600-700mm in the southern extent of the proposed development to about 500 -650mm in the northern extent of the proposed development. Relative humidity is typically low and ranges from 28-30%. Annual rainfall varies from about 600-700mm in the southern extent of the proposed development to about 500-650mm in the northern extent of the proposed development. This climatic conditions lead to a relatively high environmental variability, with the danger of soil being exposed due to lack of vegetation, even by frost damage, and veld fires (especially during the dry season), and then becoming even more vulnerable to runoff, erosion and gully formation (Croucamp, 2004).

### 1.4.2 Vegetation

The study site is situated within the Savanna Biome of South Africa and in specific within the Central Bushveld Bioregion. The Savanna biome is the largest biome in southern Africa, occupying over one-third of the surface area of the country (Mucina & Rutherford, 2006). It is characterised by a grassy ground layer and a distinct upper layer of woody plants. Where this upper layer is near the ground the vegetation may be referred to as Shrubveld, where it is dense, as Woodland, and the intermediate stages are commonly known as Bushveld (Mucina & Rutherford, 2006). The Central Bushveld Bioregion (a bioregion is a vegetation organisation level between that of vegetation type and biome) comprises several vegetation types of which three are intersected by the proposed powerlines and substations development (Springbokvlakte Thornveld - *Endangered*. Only about 50% of this vegetation is currently still in a natural state, Central Sandy Bushveld - *Vulnerable*. Although about 70% of this vegetation type is still remaining in a fairly natural state, and Marikana Thornveld - *Endangered*. Only about 50% of this vegetation is currently still in a natural state).

The natural vegetation of the Winterveldt has been highly disturbed and degraded by settlement densification and trampling (Fisher, 2004) as well as the uncontrolled grazing of animals. Encroachment of alien and invasive species has replaced areas of natural vegetation, particularly in densely populated areas.

### 1.4.3 Geology and soils

Geologically, the Winterveldt area is part of the Bushveld Complex which is dominated by a large variety of igneous rocks (Lurie, 1994). All of these have been chemically weathered in the geological past to form thick regoliths and soils. The northern section of the site together with the four northernmost substation locations is underlain by the Karoo Supergroup, mafic volcanic material of the Letaba Formation and mudstones of the Irrigasie Formation. Soils are red-yellow apedal, freely drained with a high base status. In some areas self-mulching vertic clays are found. In these areas a fluctuating water table and prolonged periods of swelling and cracking with gilgai micro-relief (repeated mounds and depressions) are found (Mucina and Rutherford, 2006). The soils in the area are dominated by yellowish-brown sandy loams with high base status and depth of

>300mm. The area is well drained; erosion and deposition by wind and, mostly, water are responsible for the transportation of soils from one location to another. The topography is flat to slightly undulating plains with some low hills (Mucina & Rutherford, 2006). The low hills comprise of rocky outcrops. The proposed power line route will intersect a number of drainage lines and tributaries to rivers such as the Rosespruit, Sand River and the Soutpanspruit.

## **1.5 Required Services**

### **1.5.1 Establishment of Construction Camps**

The establishment of construction camps will be done in accordance to the stipulations of the final Environmental Management Plan and negotiations with the affected landowners.

### **1.5.2 Water**

Water will be required for potable use and in the construction of the foundations for the towers. The water will be sourced from approved abstraction points at locations closest to the area of construction.

### **1.5.3 Sewerage**

The generation of sewerage is anticipated for the duration of construction. Use will be made of chemical toilets that will be regularly serviced by the service provider. Grey water from construction camps will be directed to soak-aways.

### **1.5.4 Roads**

Existing roads will be utilised as far as possible during construction and operation. The use of roads on landowner property is subject to the provisions of an EMP that will be prepared for the project, with individual landowner specifications being determined during discussions with landowners during the servitude negotiation process.

### **1.5.5 Solid Waste Disposal**

Eskom has a strong commitment to waste minimisation and recycling. All solid waste will be collected at a central location at each construction site, and will be disposed at the registered waste site or stored temporarily until removal for recycling or disposal at an appropriately permitted landfill site in the vicinity of the construction site.

### **1.5.6 Electricity**

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

### **1.5.7 Construction Process**

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

Step 1: Feasibility and identification of line alternatives.

Step 2: Basic Assessment input and environmental permitting.

Step 3: Negotiation of final route with affected landowners.

Step 4: Survey of the proposed route.

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- Step 5: Selection of structures suited to the terrain and ground conditions.  
 Step 6: Final design of the distribution line and placement of towers.  
 Step 7: Issuing of tenders and eventually appointment of contractors for the project.  
 Step 8: Vegetation clearance and construction of access roads (if required).  
 Step 9: Pegging of structures.  
 Step 10: Construction of foundations.  
 Step 11: Assembly and erection of structures.  
 Step 12: Stringing of conductors.  
 Step 13: Rehabilitation of disturbed areas and protection of erosion sensitive areas.  
 Step 14: Testing and commissioning.  
 Step 15: Operation and routine maintenance.

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

**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
<p><b>GNR. 544 Listing Notice 1</b>  <b>Item 10:</b> 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;</p>	<p>Construction of two (2) x 132kV power lines in parallel alignment from the existing Garankuwa and Dinaledi substations to the proposed Dipompong substation and one (1) x 132kV power line from Dipompong substation to Tswaing substation with alternative site 2 and 3.</p>
<p><b>GNR. 544 Listing Notice 1 Item 11:</b> The construction of:                      (xi) infrastructure or structure covering 50 square metres or more</p> <p>Where such construction occurs within 32 metres of watercourse, measures from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	<p>Electrical infrastructure could be positioned close to or within a watercourse.</p>
<p><b>GN R 546 2010 Listing Notice 3 Item 12:</b> The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.</p> <p>(b) within critical biodiversity areas in bioregional regions.</p>	<p>Clearing of vegetation along the route within the servitude will likely occur in areas identified as important in the Gauteng C-Plan 3.3</p>

<p><b>GN R 546 2010 Listing Notice 3 Item 13:</b> The clearance of an area 1 hectare or more where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</p> <p>(2) the undertaking of a linear activity falling below the thresholds mentioned in Listing 1 in terms of GN No. 544 of 2010.</p> <p>(d) In Gauteng:</p> <p>(i) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(ii) National Protected Area Expansion Strategy Focus areas;</p> <p>(iii) Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act, 1989 (Act No. 73 of 1989), the Nature Conservation Ordinance (Ordinance 12 of 1983); (v) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the act and as adopted by the competent authority;</p> <p>(iv) Sites or areas identified in terms of International Convention;</p> <p>(v) Sites identified as irreplaceable or important in the Gauteng Conservation Plan.</p>	<p>Clearing of vegetation along the route and substation sites within the servitude will likely occur in areas identified as important in the Gauteng C-Plan 3.3</p>
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## 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.

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

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

**a) Site alternatives: Substations**

<b>Proposed substations and Alternatives</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
Proposed Dipompong Substation (Preferred)	25° 21' 53" S	27° 58' 0" E
	<b>Lat (DDMMSS)</b>	<b>Long (DDMMSS)</b>
Proposed Tswaing Substation (Preferred)	25° 23' 50" S	28° 03' 24" E
	<b>Lat (DDMMSS)</b>	<b>Long (DDMMSS)</b>
Dimpopong substation Alternative	25° 22' 59" S	27° 57' 26" E
	<b>Lat (DDMMSS)</b>	<b>Long (DDMMSS)</b>
Tswaing substation Alternative	25° 22' 30" S	28° 01' 18" E

In the case of linear activities:

**Alternative:**

**Proposed Route - Purple Line  
(Dinaledi to Dipompong)**

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

**Latitude (S):**

**Longitude (E):**

25° 34' 35" S	27° 51' 09" E
25° 29' 59" S	27° 55' 37" E
25° 23' 11" S	27° 57' 25" E

**Proposed Route - Green Line  
(Garankuwa to Dipompong)**

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

25° 24' 35" S	27° 56' 28" E
25° 29' 34" S	27° 56' 7" E
25° 35' 4" S	27° 59' 14" E

**Proposed Route - Pink Line  
(Dipompong to Tswaing)**

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

25° 24' 9" S	28° 2' 54" E
25° 24' 56" S	28° 1' 28" E
25° 23' 12" S	27° 57' 25" E

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**Alternative:**

**Alternative Route - Light Pink Line  
(Dinaledi to Dipompong)**

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

**Latitude (S):**

**Longitude (E):**

-25.40890	27.94180
-25.46490	27.91780
-25.40680	27.94280

**Alternative Route - Dark Green Line  
(Garankuwa to Dipompong)**

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

25° 24' 35" S	27° 56' 28" E
25° 29' 43" S	27° 56' 13" E
25° 35' 4" S	27° 59' 14" E

**Alternative Route 1- Brown Line  
(Dipompong to Tswaing)**

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

-25.39280	27.95090
-25.41220	27.99290
-25.37140	28.02150

**Alternative Route 2 - Blue Line  
(Dipompong to Tswaing)**

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

-25.39570	28.06060
-25.33170	28.01840
-25.38280	27.95670

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.

Refer to Appendix A for the co-ordinates taken every 250m for the alternative lines.

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

**b) Lay-out alternatives/NA**

<b>Alternative 1 (preferred alternative)</b>		
	Lat (DDMMSS)	Long (DDMMSS)
<b>Alternative 2</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		
<b>Alternative 3</b>		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A		

c) **Technology alternatives (Powerline)**

**1. Steel Monopole Structure vs. Lattice structures**

Eskom prefers the proposed steel monopole structure as the technology to be used. A steel monopole structure is considered as the most appropriate technology, and in some cases has been specifically designed for the existing environmental conditions and terrain, as specified by standard ESKOM specifications and best international practice.

Monopole structures are considered to be cost effective and preferable in any areas with denser population. When compared to underground cables and other overhead structures, the speed and ease of installation of monopoles is significantly better, the impact on land is less, and the economic decisions associated with easier installations and little post-installation maintenance result in low life-cycle costs. The use of monopole structures also allows much more flexibility with respect to width of right-of-way and height requirements for structures.

The impact on the land is much less for monopole structures in comparison to other structures. In addition, the time required on the landowner's property is less for steel for monopole structures. The reduced time on the land reduces the impact on the landowner's use of his land and allows him to get back sooner to his normal operations. Lastly, the footprint required for steel monopole structures is much less when compared to other structures. The reduced footprint can require less right-of way, easier operation on the ground during construction, and allow for more natural uses of land after construction.

Overhead lines make up a large part of the interconnected system. They ensure low-loss transmission at 380-kV extra-high voltage, and thus guarantee reliable energy supply. Cables, in contrast, are predominately used in medium- and low-voltage networks, as well as for power distribution in densely built-up areas with high electricity demand. Nevertheless, underground cables have, in many cases, economic, ecological and legal disadvantages which must be carefully taken into consideration.

These tower structures proposed have been selected to reduce visual impacts, impact on sensitive vegetation areas, wetlands and sensitive riparian habitats.

With regards to the issue of lattice vs. monopole, Eskom generally utilises monopole structures as it is aesthetically more pleasing, has a smaller footprint and requires less steel. Monopole structures are not self-supporting hence it needs stays to hold up the strain structures whereas lattice can be self-supporting.

**Technology Alternative 2: Overhead Powerline vs. Underground Cable**

The alternative entails the installation of electric cables underground rather than overhead on poles and tower. The major environmental impacts of overhead lines occur when they are already in operation. They are mainly related to birds colliding with the lines as well as the visible effects on the landscape. Whereas the most harmful part of underground cables, in contrast, is their installation.

Although underground power cables can be can assist the transmission of power across densely populated urban areas Rivers and other natural obstacles; land with outstanding natural or environmental heritage and areas where land is unavailable or planning consent is difficult like the Winterveld area. However, undergrounding is more expensive, since the cost of burying cables at transmission voltages is several times

greater than overhead power lines, and the life-cycle cost of an underground power cable is two to four times the cost of an overhead power line.

Whereas finding and repairing overhead wire breaks can be accomplished in hours, underground repairs can take days or weeks, and for this reason redundant lines are run. Furthermore, underground power cables, due to their proximity to earth, cannot be maintained live, whereas overhead power cables can be. Operations are more difficult since the high reactive power of underground cables produces large charging currents and so makes voltage control more difficult. The shunt capacitance is greater with underground cables than it is with overhead, and at the same time, the series reactance is lower. That's a consequence of the spatial physics. As a result, the use of underground cables for transmission can result in significant reactive control problems at the transmission level. That in turn means that additional equipment is required to address those reactive control problems, further increasing the effective cost of underground compared with overhead.

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

Underground cables also cause negative ecological impacts. When burying cables, the soil must be exchanged. Furthermore, not only do the cable routes need to be kept free from deeply rooted plants, they may not be built on for any other purpose. In addition, underground cables radiate heat. This has an effect on soil humidity, which, for example, can lead to drainage or drying out of marshes.

These projects are Department of Energy funded and as such must be done at lowest possible cost so as to maximise the number of people that can be connected with available funds. Cable theft is a problem in the Winterveld and Garankuwa areas and this would result in frequent outages and very high replacement costs as well outage costs.

In general, underground cables will obviously have major Ecological impacts during their installation than during operation. Key significant activities which would have considerable consequences for the environment include:

- Earthworks/excavation / trenching
- Road construction for access purposes
- Clearing of vegetation for access purposes that may be needed for heavy machinery needed for cable transportation and trenching
- Impacts on fauna and flora species located within and around cable route
- Soil compaction will have negative impacts on both flora, fauna and general ecological environment
- Irreversible damage on the wetland and other water courses
- Potential impacts on unknown features of heritage significance

***Although there are benefits in terms of use of the land (agricultural activities) after the installation of the underground cables, the negative ecological impacts and the huge cost implications outweigh the***



*other benefits. It is for these reasons that this option is not recommended or preferred for the purposes of this project. A detailed impact assessment for the use of underground cabling is outlined in Section D of this report.*

**Alternative 3**

N/A

**c) Technology alternatives (Substation)**

**1. Air Insulated Substation (AIS) vs. Gas Insulated Substation (GIS)**

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

*This alternative is therefore not preferred for the reasons stated above.*

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

<b>Alternative 1 (preferred alternative)</b>		
<b>Alternative 2</b>		
<b>Alternative 3</b>		

**e) No-go alternative**

The No-go option implies that the Project does not proceed, and will thus comprise of Eskom not going ahead with the construction of the proposed power lines and substations. Ideally this would be the preferred alternative as the status quo of the environment remains unchanged, however due to the growing demand for energy and activities that will require electricity in the area, this alternative is not feasible. Should Eskom rely on the existing network to supply future demand it is highly likely that present supply will be compromised due to the increased load on the network. Although the no-go alternative has been considered, it is not a practical project alternative in terms of providing stable electricity supply in the Winterveldt area as it implies a continuation of the current situation or the status quo, therefore, it doesn't render any positive outcomes.

By not increasing the supply to the greater area, development will be constrained as the already existing 33kV network is operating at near-capacity and will not be able to accommodate the amount of load that will be brought by future developments. A new 132kV overhead powerline and the substations are required to strengthen the grid supply in the Winterveldt area.

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):

**Proposed substation location and alternatives**

Alternative A1<sup>1</sup> **Proposed Dipompong Substation**

Alternative A2 **Proposed Tswaing Substation**

Alternative:

**Dipompong Substation Alternative**

**Tswaing Substation Alternative**

Alternative A3 (if any)

**Size of the activity:**

100 x 150 m <sup>2</sup>
100 x 150m <sup>2</sup>
Size of the activity:
100 x 150 m2
100 x 150m2
N/A

or, for linear activities:

**Proposed routes and Alternatives:**

**Proposed Route - Purple Line (Dinaledi to Dipompong)**

**Proposed Route - Green Line (Garankuwa to Dipompong)**

**Proposed Route - Pink Line (Dipompong to Tswaing)**

**Alternative Route – Light Pink (Dinaledi to Dipompong)**

**Alternative Route - Dark Green Line (Garankuwa to Dipompong)**

**Alternative Route 1- Brown Line (Dipompong Tswaing)**

**Alternative Route 2 - Blue Line (Dipompong Tswaing)**

**Length of the activity:**

27 km
28 km
12 km
36 km
35 km
11 km
22 km

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

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

**Alternative:**

**Proposed Route - Purple Line (Dinaledi to Dipompong)**

**Proposed Route - Green Line (Garankuwa to Dipompong)**

**Proposed Route - Pink Line (Dipompong to Tswaing)**

**Alternative Route – Light Pink (Dinaledi to Dipompong)**

**Alternative Route - Dark Green Line (Garankuwa to Dipompong)**

**Alternative Route 1- Brown Line (Dipompong Tswaing)**

**Alternative Route 2 - Blue Line (Dipompong Tswaing)**

**Size of the site/servitude:**

31 m servitude
31 m servitude
31 m servitude
31 m servitude
31 m servitude
31 m servitude
31 m servitude

#### 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

<b>YES</b>	
	m

Describe the type of access road planned:

Access to the site already exists, but some access roads may need to be upgraded to allow easy movement of construction machinery. The proposed overhead distribution lines will traverse agricultural small holdings and rural areas where there are existing access roads and tracks in close proximity to the site. New access roads will be constructed where no access route exists in close proximity to the proposed power line route.

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

#### 5. LOCALITY MAP

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

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s)

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

### 6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

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

### 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.

**Please refer to Appendix B**

## 9. FACILITY ILLUSTRATION

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

*Examples of Schematic drawings of the powerline infrastructures and substation that may be used for the development have been included in **Appendix C**. **NB:** Please note that details regarding the number and the type of towers and other support infrastructures associated with the powerline will be confirmed during the detail design phase and following the approval of the proposed development. Currently it is proposed that steel monopoles will be used for the 132kV line from Garankuwa and Dinaledi substations to Dimopong substation and from Dipompong to Twsaing substation.*

## 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 ✓	NO	Please explain
The proposed routes and substations are located on privately owned agricultural and residential smallholdings. Once the proposed overhead line and substation have been constructed, limited impacts are expected. Eskom will acquire servitudes and affected property owners will be permitted to use areas underneath the lines for activities such as animal grazing. Other activities, except the construction of buildings and tall structures and growing of trees, may also continue below the lines.			
<b>2. Will the activity be in line with the following?</b>			
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	YES ✓	NO	Please explain
The Gauteng Employment, Growth and Development Strategy (2009) states that the infrastructure network of the Province is a strategic, socio-economic and bulk infrastructure investment and includes: transport and logistics (including roads, rail and air), Information and Communication and Technologies, schools, hospitals, clinics, libraries, universities (if applicable), <b>electricity services (energy)</b> , water reticulation services, sewage and sanitation services, waste management services, and so forth. Thus the provision of electrical infrastructure is in line with SDF.			
<b>(b) Urban edge / Edge of Built environment for the area</b>	YES	NO ✓	Please explain
The proposed distribution lines fall outside the urban edge. Although the proposed development does not entirely fit the surrounding area entirely and there are no existing powerlines within the proposed corridor which may result in visual intrusion in the area, However, electricity distribution infrastructure is required for existing residential areas outside the urban edge. The project will strengthen the electricity distribution network in the Winterveldt area.			

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<p><b>(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?).</b></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The City of Tshwane Metropolitan Municipality and Madibeng Local Municipality acknowledge that the provision of electricity infrastructure is of key importance and prioritises the need to provide universal access to this service. The IDPs highlight that the area require considerable resources to eliminate the backlogs of electricity provision to ensure that the provision of service keeps pace with the demand to prevent a further accumulation of backlogs. Within the Madibeng Local Municipality, the smaller villages in the rural areas have the greatest backlog. Electrification of rural homes, schools, clinics, small businesses is one the main policy considerations currently under discussion. Increased number of substations is considered as a need to increase the electricity supply within the area. Eskom will invest in the local economy by providing the infrastructure, which in turn will then assist the municipalities in reaching their objectives. In this way the proposed development is aligned with the municipal objectives and priorities for service delivery and infrastructural development in the area.</p>			
<p><b>(d) Approved Structure Plan of the Municipality</b></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed project entails electricity infrastructure, which is compatible with the Gauteng Employment, Growth and Development Strategy (2009), the Madibeng Local Municipality IDP (2011-2016) and the City of Tshwane Metropolitan Municipality (2011-2016).</p>			

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<p><b>(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?)</b></p>	YES	NO ✓	Please explain
<p>No EMF for area in which the route alternatives are located. The IDP (2011-2016) for Madibeng Local Municipality's Management Framework is completed but it is not yet adopted by the Council (Madibeng IDP, 2011-2016). However the Gauteng Province has identified (2006) Geographical Areas. The proposed powerline from the GaRankuwa substation aligns westward through an area indicated by GDARD to be Important for conservation. This area is associated with natural vegetation as well as plants of conservation concern that has previously been recorded here. According to the Gauteng Conservation Plan (Version 3.3) (GDARD, 2011) the Tswaing substation is located immediately next to a protected area (the Tswaing Meteorite Crater Reserve) and the Ecological Support Areas associated with it. The Garankuwa substation is located within an area classified as an 'Important Area'. An ESA associated with a tributary of the Sand River is situated directly west of Ga-Rankuwa substation where it will be crossed by the proposed Ga-Rankuwa- Dipompong powerline, while an ESA associated with the Soutpanspruit is situated west of the proposed Tswaing substation and will be crossed by the Dipompong-Tswaing powerline. In terms of the North West Biodiversity Conservation Assessment, The centre portion of the proposed Dinaledi-Dipompong and the Ga-Rankuwa-Dipompong route alignments traverse an aquatic CBA1, which represents important sub-catchments (North West DACE, 2009)? Linear development within the aquatic CBAs and ESA's are restricted and where permitted are subjected to compulsory, site-specific conditions and controls (North West DACE, 2009). Much of the proposed powerline alignment as well as the proposed Dipompong substation locality are situated within a CBA 2, indicating that these areas are remaining natural patches larger than 5ha of provincially endangered and vulnerable ecosystems (vegetation types), i.e. the amount remaining intact of this vegetation type is less than 60%. Any further transformation of these vegetation types should be limited to existing transformed or heavily degraded areas.</p> <p>Therefore the proposed routes should be discussed with the North West Department of Agriculture, Conservation, Environment and Rural Development and the route be aligned as much as possible within already transformed vegetation.</p>			
<p><b>(f) Any other Plans (e.g. Guide Plan)</b></p>	YES ✓	NO	Please explain
<p>The proposed development is aligned with Eskom's Integrated Strategic Electricity Planning (ISEP) process, which is intended to provide strategic projections of supply-side and demand-side options to be implemented in order to meet long-term load forecasts. It provides the framework for Eskom to investigate a wide range of new supply-side and demand-side technologies with a view to optimising investments and returns.</p>			

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<p><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></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed development is in line with the National Development Plan and City of Tshwane Metropolitan Municipality and Madibeng Local Municipality SDF's and IDP's, which related to the provision of infrastructure such as electricity supply. Madidi village is under the proposed study area and is one of the areas earmarked for housing development. New housing development will require electrification which can be provided by the proposed powerlines development.</p>			
<p><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></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>As part of the Winterveldt Redevelopment and Reconstruction Business Plan, The City of Tshwane has indicated that 32000 electrification connections will be required in Winterveldt over the next 5 years. There are no High Voltage (HV) networks in the Winterveldt area and the load cannot be connected on the 33kV network, thus a 132kV network solution is required. Two new substations are planned in order to create capacity for the expected load. A 132kV power line is proposed to connect the existing GaRankuwa substation and the Dinaledi substation in the south with the proposed new Dipompong substation and the proposed new Tswaing substation in the northern extent of the proposed power line. These will be constituted of RDP houses that are expected to be constructed in the 5 year time frame. At an ADMD of 2.4kVA per connection, these connections translate to a load of 76.8MVA. The 33kV network in the area will not be able to accommodate this amount of load and is also not an optimal voltage for the distribution of this load. Strengthening is required in order to accommodate the new load in the Winterveldt area in the pursuit of universal access to electricity. Dipompong Substation will provide capacity for the expected growth in the western part of Winterveldt.</p>			
<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>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The proposed project is the construction of two 132kV substation and associated overhead distribution powerlines. It will not require any capacity for services such as water and sanitation from relevant Municipalities. It will however provide additional electricity capacity to the Winterveldt area.</p>			



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<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>	<p>YES</p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The proposed project is the construction of two 132kV substation and associated overhead distribution powerlines. It will not require any capacity for services such as water and sanitation from relevant Municipalities. It will however provide additional electricity capacity to the Winterveldt area.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The upgrading of the electricity network and infrastructure especially the substations and transmission and distribution lines is a strategic priority towards addressing the shortage of electricity in South Africa.</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>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>Although the proposed development transverse privately owned agricultural and residential lands, the location of the sites is selected such that is within or next to the centre of the load demand.</p>			
<p><b>9. Is the development the best practicable environmental option for this land/site?</b></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The current status quo is the best practicable environmental option. The smallholdings in the study area are not economically viable agriculture units and majority are not utilized. The construction of the 132kV line and substation will not impact significantly on the current land use.</p>			
<p><b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b></p>	<p>YES ✓</p>	<p>NO</p>	<p>Please explain</p>
<p>The potential benefit of the proposed power line and substation to the Winterveldt area lies in the stimulation of the local economy through a reliable electricity supply, which will increasingly benefit the provision of services. Furthermore, improving network reliability may reduce the number of residents within Winterveldt who are still reliant on domestic fires, which in turn negatively impact the environment through uncontrolled harvesting of woodlands and air quality. The provision of electricity may promote local economic development and investment in Winterveldt. Provision of electricity is critical for economic development, related employment and sustainable development in South Africa. In the context of the project improvement of the 132kV supply is critical to the improvement of provision of household electricity.</p>			
<p><b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b></p>	<p>YES</p>	<p>NO ✓</p>	<p>Please explain</p>
<p>The preferred proposed routes are in part adjacent to the existing 88kV power line from Ga-Rankuwa and Dinaledi substations.</p>			

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<b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b>	YES	NO <input checked="" type="checkbox"/>	Please explain
The proposed 132kV Dipompong and Tswaing Substations and their Associated Overhead Power Lines will not negatively affect any persons rights. The servitude rights for the line will be acquired by Eskom and financial compensation will be paid.			
<b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b>	YES	NO <input checked="" type="checkbox"/>	Please explain
The project is the proposed construction of an overhead electricity distribution line and substation. Areas outside of the urban edge and rural areas do require electricity. The urban edge will not be compromised.			
<b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b>	YES <input checked="" type="checkbox"/>	NO	Please explain
<p>The project will conform to the objectives of the following SIPS:</p> <p><u>SIP 6: Integrated Municipal Infrastructure Project</u> Develop a national capacity to assist the 23 least resourced districts (17 million people) to address all the maintenance backlogs and upgrades required in water, <b>electricity</b> and sanitation bulk infrastructure.</p> <p><u>SIP 10: Electricity Transmission and Distribution for all</u> Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development. Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity.</p>			
<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain		
The provision of a reliable electricity network and provision of capacity for new users.			
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain		
The proposed project will ensure that economic growth continues in the region.			

17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>The following NDP sections area relevant:</p> <p>ELEMENTS OF A DECENT STANDARD OF LIVING Electricity</p> <p>WOMEN AND THE PLAN Access to safe drinking water, <b>electricity</b> and quality early childhood education, for example, could free women from doing unpaid work and help them seek jobs</p> <p>Due to a reduction in capital spending from effect, South Africa has missed a generation of capital investment in roads, rail, ports, <b>electricity</b>, water, sanitation, public transport and housing. To grow faster and in a more inclusive manner, the country needs a higher level of capital spending.</p> <p>Chapter 4: ECONOMIC INFRASTRUCTURE Objectives The proportion of people with access to the <b>electricity</b> grid should rise to at least 90 percent by 2030, with non-grid options available for the rest.</p> <p>Action 20 of The National Development Plan also considers the Ring-fencing the electricity distribution businesses of the 12 largest municipalities (which account for 80 percent of supply), resolve maintenance and refurbishment backlogs and develop a financing plan, alongside investment in human capital.</p> <p>Actions 21. Revise national <b>electrification</b> plan and ensure 90 percent grid access by 2030 (with balance met through off-grid technologies).</p>	
<p><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></p>	
<p>This report serves as a Basic Assessment report that will investigate all potential impacts (social, economic and environmental) that may result from the development including alternatives, assess and evaluate and further provide a mitigation plan for all identified potential impacts.</p>	
<p><b>19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</b></p>	
<p>Specialist investigations (fauna, flora, heritage, geotechnical, visual and wetland) were appointed to investigate potential environmental impacts. Identified environmental impacts were assessed and mitigation measures provided to control and manage these environmental impacts. Interested and Affected parties, land owners and relevant stakeholders were identified and involved throughout the Basic Assessment process and their comments will be addressed and recorded as part of this assessment.</p>	

**11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES**

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
Constitution of the Republic of South Africa, Act 108 of 1996	The Constitution (section 24) makes provision for the protection of the natural environment and heritage resources through the recognition of the rights to a safe and healthy environment	Republic of South Africa	1996
National Environmental Management Act (NEMA), No. 107 of 1998	NEMA is the overarching environmental management legislation. The NEMA Act sets out the principles of Integrated Environmental Management (IEM). NEMA aims to promote sustainable development, with wide-ranging implications for national, provincial, and local government. Section 2 of NEMA, sets out a range of environmental principles that are to be applied by all organs of state when taking decisions that may significantly affect the environment. Section 24, as amended, states that the activities that may significantly affect the environment and require authorisation or permission by law must be investigated and assessed prior to approval.	Department of Environmental Affairs	1998
Environmental Impact Assessment Regulations (Government Notice No R.	The EIA regulations describe the EIA process to be	Department of Environmental	2010

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543, 544 and 546)	followed including the public participation process, and the listed activities that may have a harmful impact on the environment and must be assessed.	Affairs	
National Environmental Management Biodiversity Act, No. 10 of 2004 of 1989	<p>This Act allows for the protection of species and ecosystems that administration and management of protected areas in warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources and the establishment and functions of the South African National Biodiversity Institute.</p> <p>Some Critical Biodiversity Areas and vulnerable and endangered ecosystems have been identified by the vegetation specialist in the study site.</p>	Department of Environmental Affairs	1999
National Water Act No 36 of 1998	Provides for the protection of water resources, the use of water resources, waste disposal or alteration of characteristics of watercourses (e.g. rivers, streams, wetlands, etc.) and pollution prevention. A Water Use Licence Application is made to authorise water use activities pertaining to the altering of the bed and banks of a watercourse and diverting the flow of water in	Department of Water Affairs	1998

BASIC ASSESSMENT REPORT

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	a watercourse. This WULA is made as some watercourses have been identified and the construction of some tower structures within 500m of a watercourse may result.		
National Environmental Management: Air Quality Act No 39 of 2004	This Act aims to provide for the management of air quality in South Africa.	Department of Environmental Affairs	2004
National Environmental Management Waste Act No 59 of 2008	Makes provision for sound management of general and hazardous waste in South Africa, through the integration of a sufficient range of complementary waste management options, in line with the waste management hierarchy and internationally accepted principles of best environmental practice. Waste will be generated during the construction phase of the project.	Department of Environmental Affairs	2008
National Heritage Resources Act No. 25 of 1999	The Act aims to promote an integrated system for the identification, assessment and management of the heritage Resources in South Africa.  Under section 38. (1) of the NHRA any person who intends to construct a powerline or other linear development exceeding 300m in length must notify the responsible heritage resources agency of its intention.	SAHRA	1999
Occupational Health and Safety Act No. 85	The OHSA governs and ensures the protection of employees in the workplace.	Department of Labour	1963

BASIC ASSESSMENT REPORT

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of 1993	A number of permanent and contract skilled and semi-skilled workers will be involved in the construction of the different aspects of the project. Their appointment and work periods will be subject to the provisions of the OHSA.		
The Conservation of Agricultural Resources Act No 43 of 1983	To provide for the conservation of the natural agricultural resources of the Republic of South Africa by the preservation of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants. This act will regulate construction activities to prevent the spreading of invasive species and to ensure successful rehabilitation of the receiving environment.	Department of Agriculture, Forestry and Fisheries	1983
Public Access to Information Act No 2 of 2000	Provides the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights; and to provide for matters connected therewith. Eskom needs to acquire servitude from existing land owners, any individual owner has the right to access to any information pertaining to	Department of Justice	2000

BASIC ASSESSMENT REPORT

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	the project		
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**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 <input checked="" type="checkbox"/>
-----	--

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

m <sup>3</sup>
----------------

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

Construction rubble/ solid waste will be temporarily stored on site in designated waste skips and then removed by an appropriate waste contractor appointed by the main construction contractor to an approved landfill site. This will be managed through the EMP.

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

General waste removed from site will be disposed of at the Ga-Rankuwa Landfill Site in Garankuwa which is the nearest registered landfill. Safe disposal certificates must be obtained and kept on site for the duration of the construction phase.

Will the activity produce solid waste during its operational phase?

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

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

m <sup>3</sup>
----------------

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.

Ga-Rankuwa Landfill site

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

All solid waste will be disposed off at a landfill site

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

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

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

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.



BASIC ASSESSMENT REPORT

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

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

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.

The most significant hazardous waste streams will be cement and used motor oils from construction vehicles. Designated hazardous store areas will be set up and the hazardous waste will be disposed of at the appropriate hazardous landfill site, which is Ga-Rankuwa Landfill site.

**b) Liquid effluent**

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

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

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

m <sup>3</sup>	
----------------	--

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

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

*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 <input checked="" type="checkbox"/>
-----	--

If YES, provide the particulars of the facility:

<b>Facility name:</b>	N/A		
<b>Contact person:</b>			
<b>Postal address:</b>			
<b>Postal code:</b>			
<b>Telephone:</b>	<b>Cell:</b>		
<b>E-mail:</b>	<b>Fax:</b>		

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

None, as effluent will be disposed off at the Waste Water Treatment Works

**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 <input checked="" type="checkbox"/>
-----	--

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

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

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:

Emissions will be generated during the construction phase. Emissions generated will be in the form of dust, carbon dioxide and other vehicle emissions generated by diesel powered machinery and trucks during the construction process i.e. tip trucks, TLB's, excavators and dust from the movement of the construction vehicles. These emissions will be composed primarily of CO<sub>2</sub> and will be of a low concentration. However these emissions will have a short term impact on the immediate surrounding area and thus no authorisation will be required for such emissions. Appropriate dust suppression measures must be implemented (e.g. removal of vegetation in a phased manner and using recycled water for spraying dust to reduce the impacts). It is recommended that construction vehicles are regularly serviced and kept in good mechanical condition to minimise possible exhaust emissions.

**d) Waste permit**

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

YES	NO ✓
-----	------

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

**e) Generation of noise**

Will the activity generate noise?

YES ✓	NO
YES	NO ✓

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

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

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

Short term noise impacts are anticipated during the construction phase of the project. It is however anticipated that the noise will be localised and contained within the construction site. The noise levels are anticipated to be less during the day lesser during night time as required for suburban districts with little road traffic in terms of SANS 10103 thus no authorisation will be required.

In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level. No noise will be generated during the operational phase of the development.

**13. WATER USE**

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

Municipal ✓	Water board	Groundwater	River, stream, dam or lake	Other	The activity will not use water
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## BASIC ASSESSMENT REPORT

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

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

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

	litres
YES √	NO

A Water Use License Application will be submitted to Department of Water Affairs (DWA) after the Basic Assessment Report (this report) has been reviewed and the project granted Environmental Authorisation by DEA.

### 14. ENERGY EFFICIENCY

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

The project is the construction of a distribution line and does not use energy. Eskom however has introduced and champions the 49m campaign which aims to reduce National energy usage by 10%, which would be as effective as the construction of a new power station, without the potential carbon emission or cost.

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

The project is the construction of a distribution line and does not use energy. Eskom however has introduced and champions the 49m campaign which aims to reduce National energy usage by 10%, which would be as effective as the construction of a new power station, without the potential carbon emission or cost.

**SECTION B: SITE/AREA/PROPERTY DESCRIPTION (PROPOSED AND ALTERNATIVE GA-RANKUWA TO DIPOMPONG ROUTES AND DINALEDI TO DIPOMPONG ROUTES)**

**Important notes:**

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

Section B Copy No.:

A

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

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

YES ✓	NO
-------	----

See **Appendices D1** (Geotechnical report), **D2** (Vegetation Assessment), **D3** (Heritage report), **D4** (Faunal Assessment), **D5** (Wetland Assessment), **D6** (Visual Assessment) **D7** (Avifauna Assessment), and **D8** (General Rehabilitation and Monitoring Plan) for the specialist studies that were conducted.

**Property description/physical address:**

<b>Province</b>	Gauteng and North West
<b>District Municipality</b>	City Tshwane Metropolitan Municipality and Madibeng Local Municipality
<b>Local Municipality</b>	City of Tshwane Metropolitan Municipality and Madibeng Local Municipality
<b>Ward Number(s)</b>	112 and 113
<b>Farm name and number</b>	See Appendix A
<b>Portion number</b>	See Appendix A
<b>SG Code</b>	See Appendix A

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:**

Residential areas and land portions of vacant 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?

YES ✓	NO
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**SECTION B: SITE/AREA/PROPERTY DESCRIPTION (PROPOSED DIPOMONG TO TSWANG ROUTES AND ALTERNATIVES)**

**Important notes:**

4. 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.:

<b>B</b>
----------

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

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

YES ✓	NO
-------	----

See **Appendices D1** (Geotechnical report), **D2** (Vegetation Assessment), **D3** (Heritage report), **D4** (Faunal Assessment), **D5** (Wetland Assessment), **D6** (Visual Assessment) and **D7** (Avifauna Assessment) for the specialist studies that were conducted.

**Property description/physical address:**

<b>Province</b>	Gauteng
<b>District Municipality</b>	City Tshwane Metropolitan Municipality
<b>Local Municipality</b>	City of Tshwane Metropolitan Municipality
<b>Ward Number(s)</b>	112 and 113
<b>Farm name and number</b>	See Appendix A
<b>Portion number</b>	See Appendix A
<b>SG Code</b>	See Appendix A

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:**

Small holdings of Winterveldt
-------------------------------

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

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

YES ✓	NO
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## BASIC ASSESSMENT REPORT

### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

#### Green Line

Flat	1:50 – 1:20	1:20 – 1:15 √	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	------------------	-------------	--------------	-------------	------------------

#### Purple Line:

Flat	1:50 – 1:20	1:20 – 1:15 √	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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#### Pink Line :

Flat	1:50 – 1:20	1:20 – 1:15 √	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
------	-------------	------------------	-------------	--------------	-------------	------------------

### 2. LOCATION IN LANDSCAPE

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

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

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

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

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

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

Geology and Soils



Figure 2: Land types associated with the proposed route alignments and substations

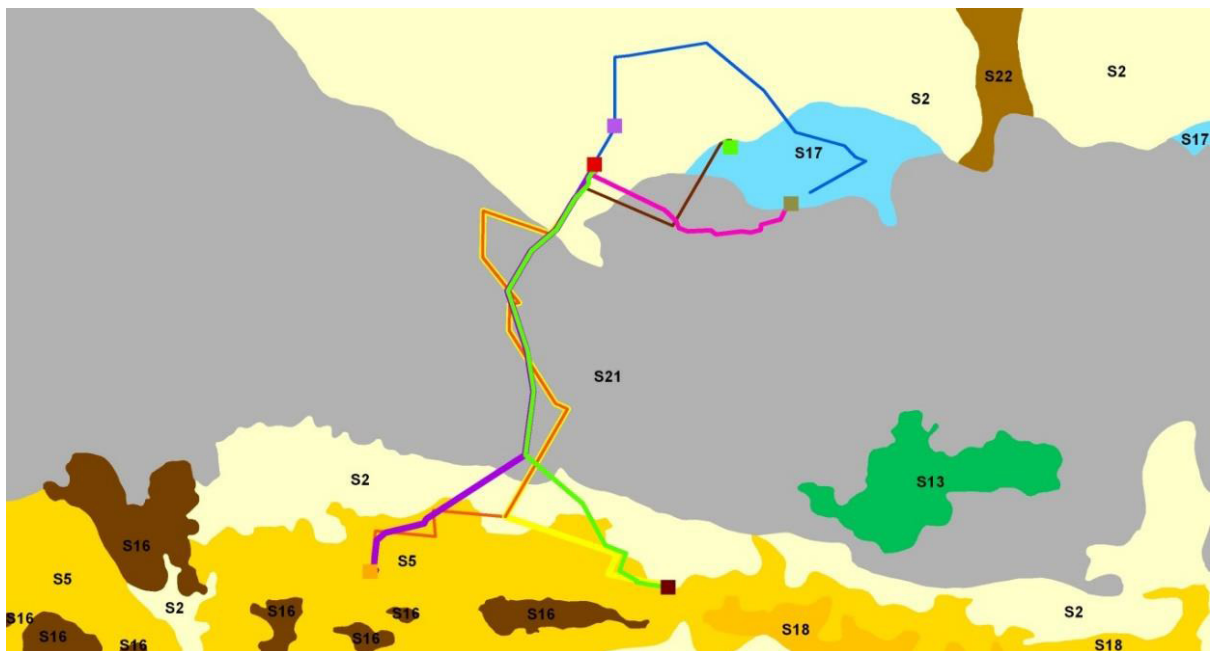


Figure 3: Soil classes associated with the proposed route alignments and substations

Limosella Consulting, 2013 (AppendixD5) describes that the geology underlying the proposed distribution line on the northern section of the site together with the two substation locations is to be underlain by the

Karoo Supergroup, mafic volcanic of the Letaba Formation and mudstones of the Irrigasie Formation. Soils are red-yellow apedal, freely drained with a high base status. In some areas self-mulching vertic clays are found. In these areas a fluctuating water table and prolonged periods of swelling and cracking with gilgai micro-relief are found (Mucina and Rutherford, 2006). S2 and S17 soil forms are characteristic of this area. S2 soils may have restricted depth and excessive drainage. S2 soils have low natural fertility and a high erosion potential. S17 soils are structureless undifferentiated soils, generally with a high swell-shrink potential and sticky, restricted effective wetness depth (please see Figure 4 above).

The central section of the proposed alignment is underlain by Rhyolite of the Selons River Formation, sandstone with subordinate conglomerates and shale of the Wilge River Formation are abundant. This geological environment supports rocky areas with miscellaneous soils ranging from sandy loams and sandy clays (Mucina and Rutherford, 2006). Land type Fa4 is dominant with a small section of Fa1 to the east of the route (ENPAT, 2001) (Figure 3). S21 soils are associated with this section of the alignment. These soils are undifferentiated shallow soils which may receive water runoff from associated rock and water-intake areas ([www.agis.agric.za](http://www.agis.agric.za)) (Figure 4).

The southern portion of the proposed route alignments and associated alternatives and the two southernmost substation locations is underlain by mafic intrusive rock of the Rustenburg Layered Suite of the Bushveld Igneous Complex. Rocks include gabbro, norite, pyroxenite and anorthosite. Soils are mainly vertic melanic clays with some dystrophic or mesotrophic plinthic catenas and some freely drained soils (Mucina and Rutherford, 2006). Relevant land types include Ae21 and Ea3 (ENPAT, 2001) (Figure 3). S2 and S5 soils are associated with the southernmost section of the route. S2 soils have low natural fertility and a high erosion potential. S5 soils are fertile soils with high clay content and therefore exhibit pronounced swelling-shrinking properties.

M. J. van der Walt Engineering Geologist CC, 2013 (Appendix D1) indicate that according to the available geological maps sheet 2528 Pretoria & sheet 2526 Rustenburg, both at a scale of 1:250 000 the power line route/s and substations are underlain by the following geological formations:

- Fine-grained silty and sandy colluvium (transported soil), possibly with a pebble marker horizon at the bottom, both classed as Recent Deposits.
- Fine-grained (silt & clay) as well as coarse-grained (sand & gravel) alluvium, Recent Deposit.
- Pedocretes, generally in the form of ferruginous concretions or a well-developed ferricrete layer at the base of the transported soils.
- Multi-coloured siltstone, sandstone with subordinate mudstone and shale of the Irrigasie Formation of the Karoo Sequence.
- Shale with subordinate sandstone and minor gritstone and conglomerate with coal layers near the base and top of the succession of the Eccu Group belonging to the Karoo Sequence.
- Grey to pink coarse-grained Nebo granite of the Rашoop Granophyre Suite belonging to the Bushveld Complex.
- Magnetite gabbro and diorite of the Bierkraal Magnetite Gabbro of the Rustenburg Layered Suite belonging to the Bushveld Complex.
- Granophyre of the Beestekraal Granophyre of the Rашoop granophyre Suite belonging to the Bushveld Complex.



## BASIC ASSESSMENT REPORT

No geological faults or dykes are indicated on the geological map over the powerline route or at or near the proposed substation positions.

### 4. GROUNDCOVER

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

Natural veld - good condition <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.

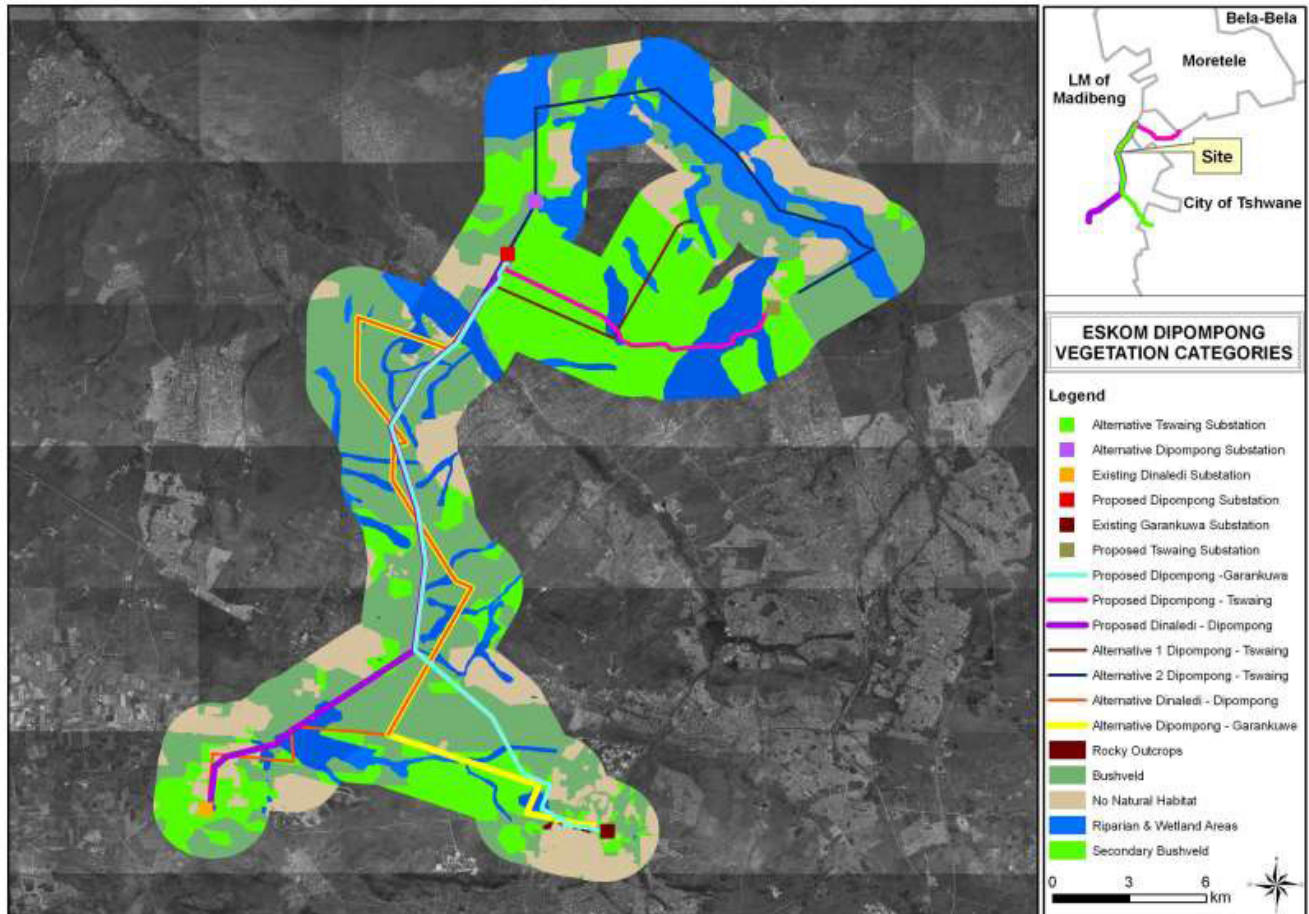
Dimela Eco Consulting, 2013 (Appendix D2) conducted a vegetation assessment of the proposed cable route and alternatives and associated infrastructure. The vegetation assessment found that the vegetation sensitivities along the surveyed routes comprised secondary bushveld, bushveld, vegetation associated with rocky outcrops and riparian and wetland vegetation. A summary of the vegetation communities and their sensitivity to the proposed and alternative routes are presented in Table 1. Figure 6 below geographically represent the vegetation communities.

**Table 1: A summary of the actual vegetation communities observed along the proposed powerline routes and proposed substation localities, as well as its sensitivity rating (Dimela 2013).**

Vegetation Description	Summary	Sensitivity
<b>Secondary Bushveld</b>	Large portions of the bushveld vegetation, especially in the southern extent of the line and south of the M20 road, were historically cultivated. These areas should have supported\ Marikana Thornveld in its natural state. However, the lands are now fallow and succession lead to an open bushland comprising of grasses such as <i>Eragrostis plana</i> and pioneer trees that included <i>Acacia karroo</i> , <i>A. gerrardii</i> , <i>Ziziphus mucronata</i> and shrubs such as <i>Grewia flava</i> and <i>Asparagus</i> species.	Low
<b>Bushveld</b>	The bushveld vegetation varied from being dominated by fineleaved thorny tree species (e.g. <i>Acacia</i> species) in the northern and southern extent of the proposed powerline route, to areas of mixed bushveld including broad leaf, deciduous woodland through much of the middle portion of the proposed powerline route alignment. The vegetation is largely intact and form part of listed ecosystems	High
<b>Vegetation associated with rocky outcrops</b>	Rocky outcrops occur within the south-eastern extent of the proposed route alignment, in close proximity to the Ga-Rankuwa substation <ul style="list-style-type: none"> <li>• These outcrops comprise of a higher vegetation diversity than the surrounding bushveld and are likely habitat for protected species</li> </ul>	Medium
<b>Riparian and wetland vegetation</b>	The interaction between land and water provides a range of micro habitats that support a diverse range of flora and included species adapted to growing in inundated conditions	High

## BASIC ASSESSMENT REPORT

- Some of these moist grasslands were historically ploughed or disturbed in some way and currently include some alien invasive vegetation
- Some of these areas could support plants of conservation concern or provincially protected plants



**Figure 4: Vegetation communities along the surveyed route**

The vegetation sensitivity assessment of Dimella Eco Consulting (2013) indicates that the riparian and wetland areas, as well as the natural bushveld vegetation are of high vegetation sensitivity, mainly due to legislated protection and the fact that the bushveld stretches over two listed ecosystems and are still in a largely natural state. The rocky outcrops are classified as being of medium sensitivity while the secondary bushveld and areas where no natural habitat remains are of least sensitivity to the proposed powerline routes, alternatives and proposed substation impacts (Figure 7).

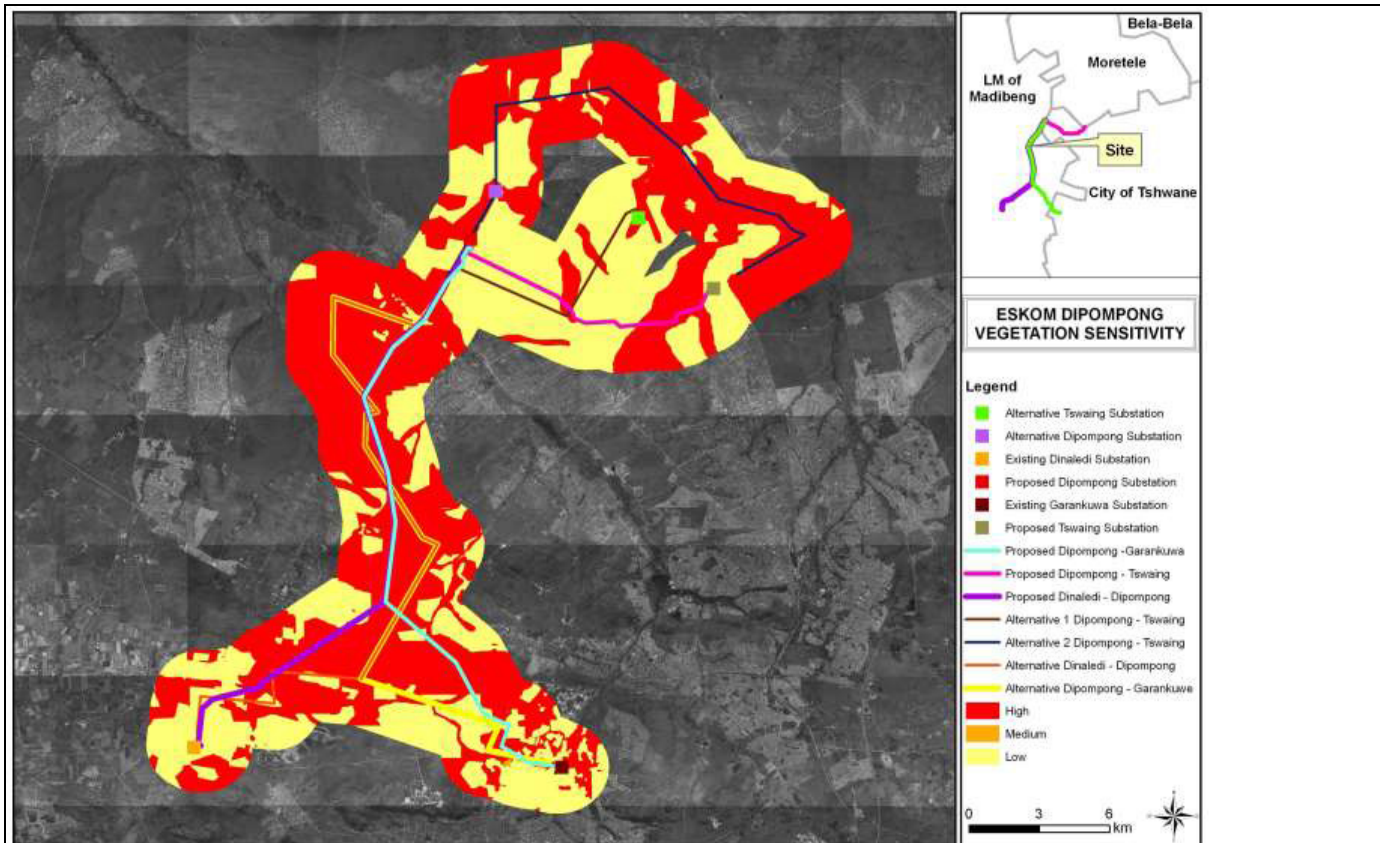


Figure 5: Vegetation sensitivity along the proposed routes alignments and substation localities

## 5. SURFACE WATER

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

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

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

Surface water spatial layers indicate that the route alignments will cross three (3) Perennial Riparian areas and a number of Non-perennial tributaries of the various Riparian areas. The Riparian areas the proposed line will cross include the Tolwane River, Rosespruit, Sandriver and Soutpanspruit (GDARD 2011;SANBI, 2010).

The proposed routes fall within Quaternary Catchment A21J, A23K and A23J. The ratios of Mean Annual

Precipitation (MAP) to Potential Evapotranspiration (PET) are 0.27 and 0.23 respectively (Macfarlane *et al*, 2010). These values indicate that wetlands lose more water through evapotranspiration than they received through precipitation, unless they are associated with surface water input.

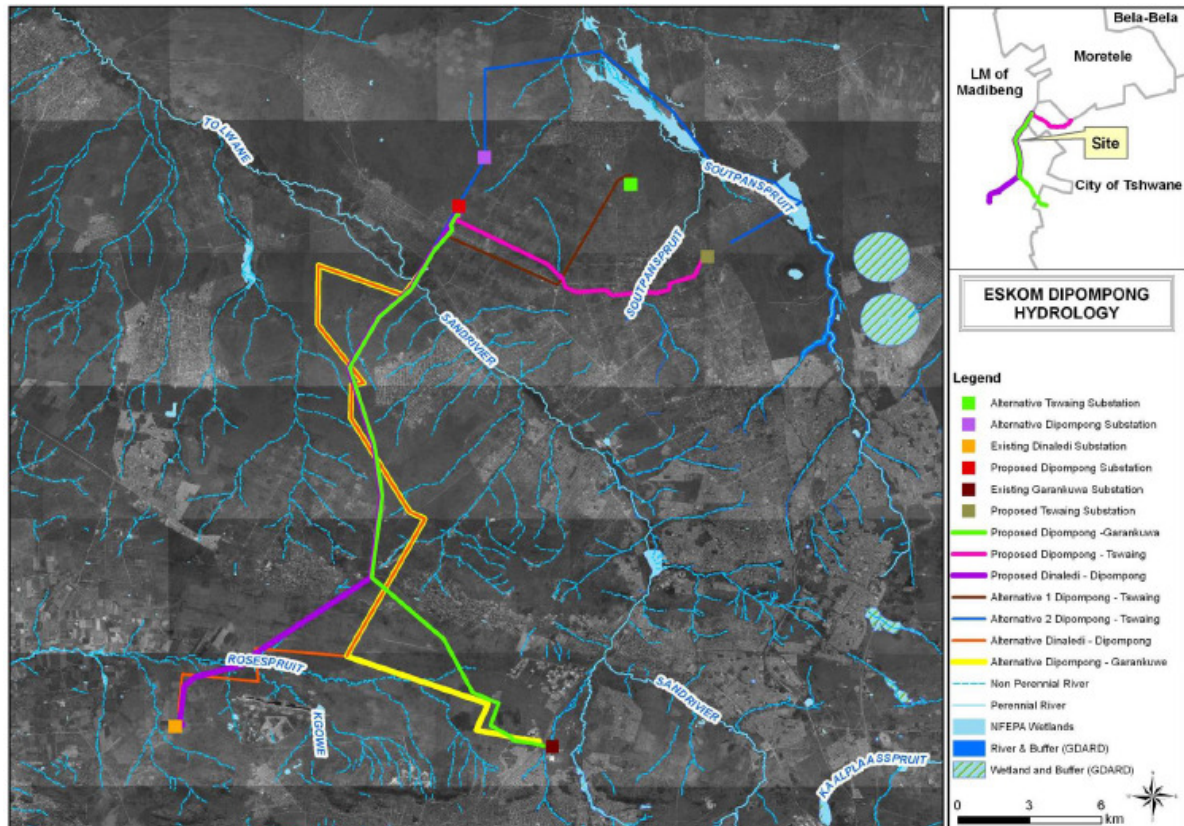


Figure 6: Hydrology Map as per existing GIS layer

According to Limosella Consulting (2013) Ten (10) wetland or riparian areas were found to intersect the proposed powerline at various points with one small Depressional Pan located close to the Dipompong Substation and associated powerlines. The wetland or riparian areas are classified as follows:

1. Seepage area.
2. Floodplain.
3. Seepage.
4. Channelled Valley Bottom with Riparian Elements.
5. Non-perennial River
6. Seepage area.
7. Seepage area.
8. Unchannelled valley bottom.
9. Floodplain.
10. Depression.

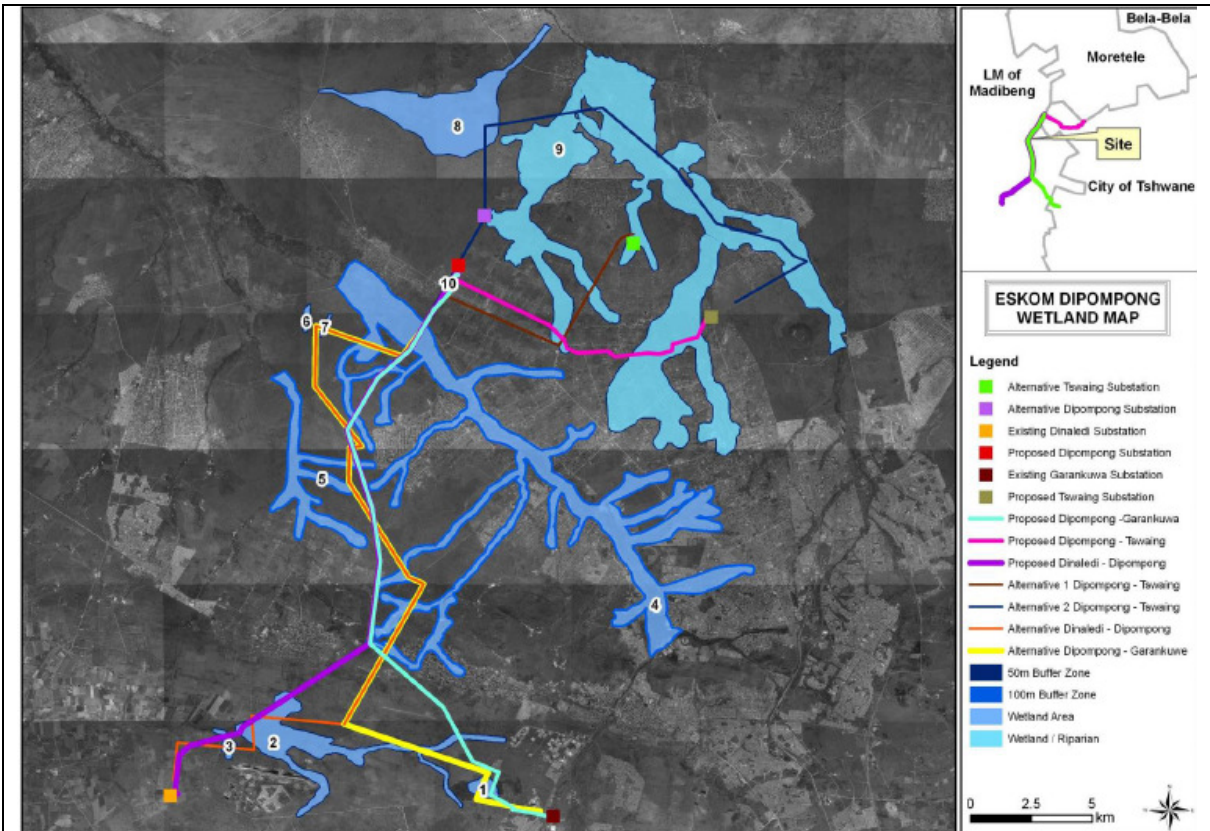


Figure 7: Wetland and riparian areas delineated along the proposed routes

Table 2 below provides a summary pertaining to the classification of hydrological features recorded during the field survey conducted by Limosella consulting and desktop assessment for the proposed route alternatives and substations. Please also refer to Appendix D5 for detailed Wetland Assessment Report.

Table 2: Classification of hydrological features along the proposed routes and at the proposed substation localities

Route	Land use and general notes	Classification of Watercourses (NWA, 1998) observed during the field survey
<b>Dinaledi to Dipompong</b>	<ul style="list-style-type: none"> <li>Majority of the route is the same as the GaRankuwa to Dipompong route, the Dinaledi to Dipompong route however starts in the west near a mine area.</li> <li>The majority of the route is located on vacant land and small holdings and informal settlements.</li> <li>The part of the route (16.4 Km) that is shared by both routes is located in an aquatic Critical Biodiversity Area.</li> </ul>	Wetland/Riparian areas number: <ul style="list-style-type: none"> <li>2 (Channelled Valley Bottom with Riparian Elements),</li> <li>3 (Floodplain),</li> <li>4 (Non-Perennial River)</li> <li>5 (Hillslope Seepage), and</li> <li>8 (Depressional Pan)</li> </ul>
<b>GaRankuwa to Dipompong</b>	<ul style="list-style-type: none"> <li>Majority of the route is the same as the Dinaledi to Dipompong route, the GaRankuwa to Dipompong route however starts in the East.</li> <li>The majority of the route is located on vacant land and small holdings and informal</li> </ul>	Wetland/Riparian areas number: <ul style="list-style-type: none"> <li>2 (Channelled Valley Bottom with Riparian Elements),</li> <li>3 (Floodplain),</li> <li>4 (Non-Perennial River),</li> <li>6 (Hillslope Seepage), and</li> </ul>

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	settlements. <ul style="list-style-type: none"> <li>The part of the route (16.4 Km) that is shared by both routes is located in an aquatic Critical Biodiversity Area.</li> </ul>	<ul style="list-style-type: none"> <li>8 (Depressional Pan).</li> </ul>
Dipompong to Tswaing	<ul style="list-style-type: none"> <li>The majority of the route is located in a residential area comprising of small holdings</li> <li>The wetland and riparian areas were grazed, cultivated and in many areas eroded.</li> </ul>	Wetland/Riparian areas number: <ul style="list-style-type: none"> <li>1 (Floodplain), and</li> <li>7 (Floodplain).</li> </ul>
<b>Substations</b>		
<b>Substation</b>	<b>Land use and general notes</b>	<b>Classification of Watercourses (NWA, 1998) observed during the field survey</b>
Tswaing Substation	<ul style="list-style-type: none"> <li>Adjacent to Nature Reserve</li> <li>Close to Floodplain Wetland</li> <li>Borders residential areas and dumping and grazing of the veld was noted</li> </ul>	<ul style="list-style-type: none"> <li>Within 500m of wetland 7 (Floodplain).</li> </ul>
Tswaing Substation Alternative	<ul style="list-style-type: none"> <li>Located within a portion of the floodplain wetland</li> </ul>	<ul style="list-style-type: none"> <li>Located approximately 200 m from the floodplain wetland</li> </ul>
Dipompong Substation	<ul style="list-style-type: none"> <li>Located in a vacant area and trees are removed for firewood</li> <li>A cemetery is situated directly north of the site and the area is trampled by cattle and pedestrians</li> </ul>	<ul style="list-style-type: none"> <li>Falls within the Aquatic Critical Biodiversity area.</li> <li>Located approximately 380m from the Depressional Pan (8).</li> </ul>
Dipompong Substation Alternative	<ul style="list-style-type: none"> <li>Located approximately 200m from the floodplain wetland</li> </ul>	<ul style="list-style-type: none"> <li>Located within a portion of the floodplain wetland.</li> </ul>

### Wetland Functionality, Status and Sensitivity

Wetland functionality is defined as a measure of the deviation of wetland structure and function from its natural reference condition. In the current assessment the hydrological, geomorphological and vegetation integrity was assessed for the wetland units that were recorded at the time of the site visit to provide a Present Ecological Status (PES) score (Macfarlane *et al*, 2007) and an Environmental Importance and Sensitivity category (EIS) (DWAF, 1999).

The integrity of the wetland on site was analysed and the system was found to be largely modified by impacted to some extent by anthropogenic activities both historically and currently. The major contributing factor which leads to a lower PES score is present and historical farming which has occurred along most of the powerline route alignment. Other contributing factors include mining and upstream and downstream dams in the area. Although the wetland vegetation has been impacted on by surrounding anthropogenic activities, it does, in its current state, create some habitat for faunal species such as frogs and avifauna species. The Present Ecological State (PES) assessment and Ecological Importance and Sensitivity (EIS) assessment were done on a strategic scale and the results are summarised in the following table.

**Table 3: Summary of the Present Ecological State (PES) assessment and Ecological Importance and Sensitivity (EIS) assessment of the proposed route alignments.**

Wetland	Present Ecological Score (PES) Scores	Ecological Importance and Sensitivity (EIS) Scores	Ecological Importance and Sensitivity Categories
1 (Hillslope Seepage)	D	0.73	Low
2 (Floodplain)	C	2.17	High

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3 (Channelled Valley Bottom with Riparian Elements)	D	2.1	High
4 (Floodplain)	D	1.93	Moderate
5 (Non-Perennial River)		Not applicable to rivers	
6(Hillslope Seepage)	D	0.57	Low
7 (Hillslope Seepage)	D	0.73	Low
8(Unchannelled Valley Bottom)	C	1.33	Moderate
9 (Floodplain)	C	2.17	High
10 (Depressional Pan)	C	1.0	Moderate

### 6. LAND USE CHARACTER OF SURROUNDING AREA

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

Natural area ✓	Dam or reservoir	Polo fields
Low density residential✓	Hospital/medical centre	Filling station <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 "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

The Dinaledi Substation is approximately 2.5 km west of the Vametco Vanadium Mine which is an open cast mine and has caused major impacts on the environment. The proposed development will have no impact on the mine.

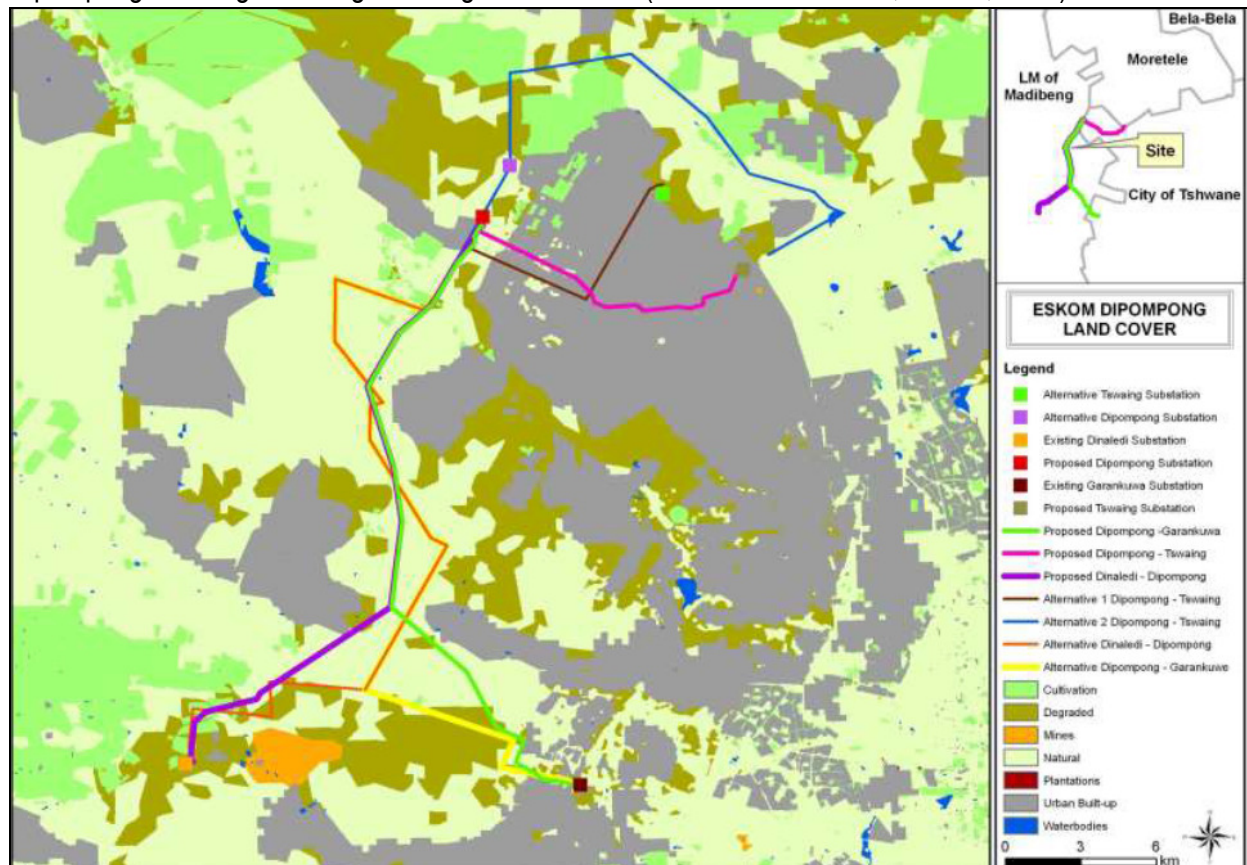
#### Land Use and Land Cover

The land uses in the study area is a combination of large parcels of vacant land, agricultural settlements and fragmented rural villages. Small-scale cultivation is noticeable in some areas but most local farmers

have cattle and goats and use the landscape for grazing. Due to the use of the land, large parts of the study area consist of the natural vegetation that is characterised by thorny woodlands and typically consist of dense shrubs and medium trees that stretch across the landscape in a homogeneous pattern.

The settlements in the central and northern parts of the study area are fragmented and are usually situated close to a tertiary road that provides access to secondary or primary road networks. These agricultural settlements are characterised by small and simple houses on relatively large tracts of land and are usually accompanied by a patch of vegetables or a herd of cattle grazing in the open spaces. The rural villages are typical of most township developments but the isolated and fragmented settlement patterns provide large open spaces between the individual communities. Despite some villages being more densely populated than others there are still an agricultural tendency with goats and cattle roaming in the streets.

In the southern extent of the lines, south of the M20 road, aerial images and older topographical maps indicated that this area was historically cultivated, while the land cover data shows much of this area to be degraded (Figure 9). According to the land cover data, much of the proposed Ga-Rankuwa-Dipompong and Dinaledi-Dipompong routes and the associated alternatives traverse natural areas, whereas the Dipompong-Tswaing route aligns through urban areas (National Land Cover, SANBI, 2009).



**Figure 8: Land Cover Map**

The Dinaledi substation is surrounded by open land which is used for grazing and indicated by the land cover as being degraded. The Ga-Rankuwa substation is within open but degraded veld, surrounded by urban areas. The proposed Dipompong substation and alternative are situated within natural vegetation,



while the proposed Tswaing substation seems to be in urban areas which comprise of 10ha plots that are clearly visible on aerial images (Figure 10). Some of these plots were cultivated and mostly grazed. It seems that most of the cultivation ceased, but grazing continues. The land cover data reflects these plots as urban/built-up. The land cover data indicate that the Tswaing substation alternative is situated within degraded land.

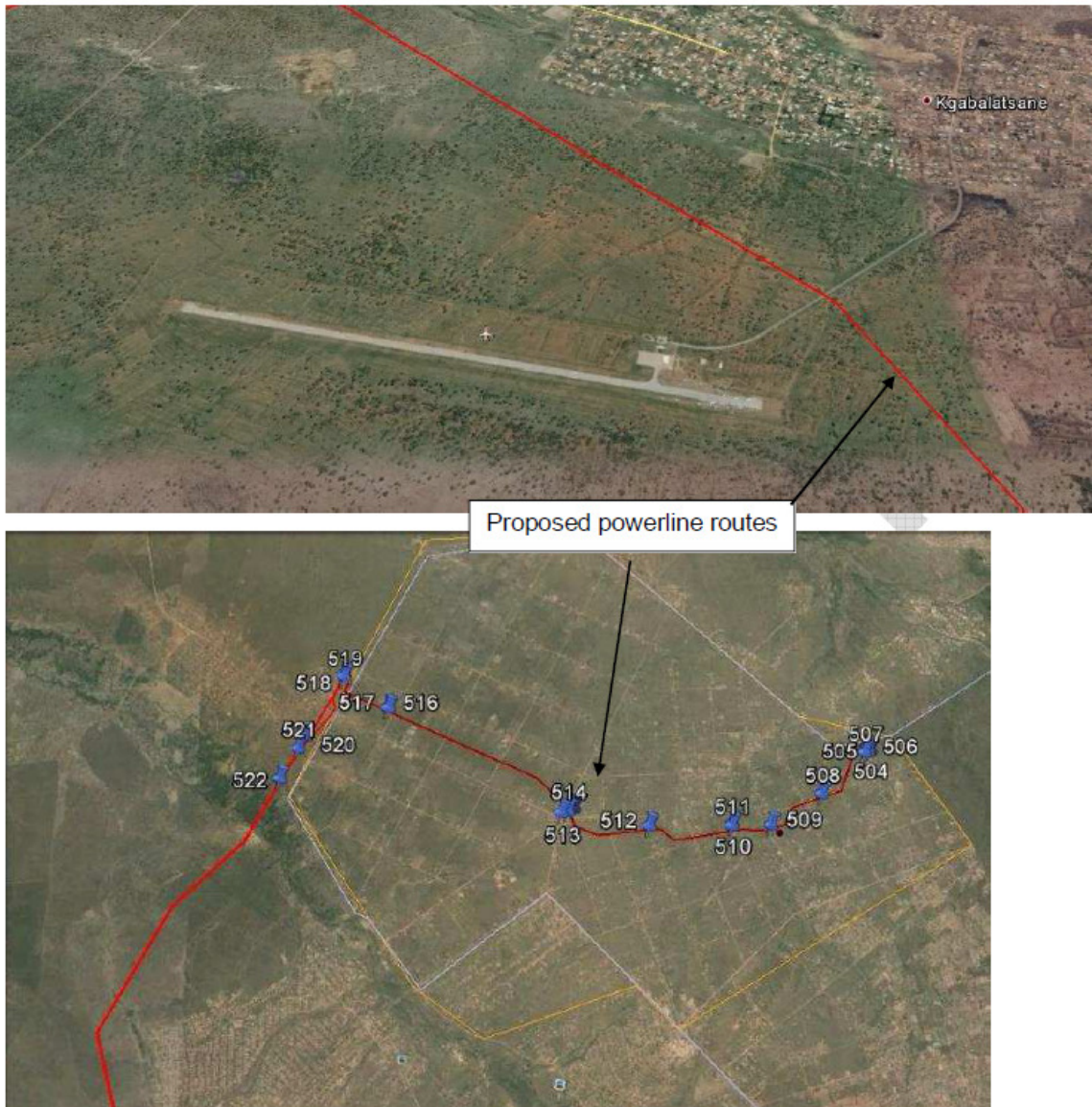


Figure 9: Historic plough lines still visible in the southern extent of the line (above) and historical agricultural plots in the Winterveldt in the northern extent of the area studied (below) (Google Earth imagery)

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

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Buffer area of the SKA?	YES	NO
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If the answer to any of these questions was YES, a map indicating the affected area must be included in **Appendix A**.

### 7. CULTURAL/HISTORICAL FEATURES

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

A number of burial places were identified. These range from very large formal cemeteries, to individual graves located in the vicinity of abandoned homesteads. Most graves have headstones and overall the graves are of recent origin, i.e. the last 20 years. A number of farm labourer homesteads were also identified in the study area.

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

A Heritage Impact Assessment was undertaken for the study area and the following sites, features and objects of cultural significance were identified in the study area.

Large sections of the region were subjected to urbanization and industrial activities, which would have destroyed any pre-colonial or early colonial heritage features that might have occurred here in the past. However, a number of formal and informal burial places as well as farm labourer homesteads were identified. In the latter case, these are located in the vicinity of abandoned homesteads. All the identified burial places are well demarcated and visible and would therefore be easily avoided. At present it is difficult to determine the exact impact the proposed development would have on these sites. No sites, features or objects dating to the Iron Age and Stone Age were found in the study area.

It is doubtful if the power line or substation would have an impact on any of these sites. The heritage specialist recommends that the power lines are routed to by-pass the various burial places and that they are demarcated with danger tape for the duration of the power line construction. The specialist further recommends a site walk-down of the route is done in order to determine if the individual pole structures will have an impact on any sites, features or objects of cultural heritage significance. This walk-down should be done during winter when the vegetation cover is down, resulting in increased archaeological visibility. It is recommended that if archaeological sites or graves are exposed during development activities, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made. The detailed Heritage report compiled by Dr J van Schalkwyk is attached in **Appendix D3**.

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

YES

NO

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

## 8. SOCIO-ECONOMIC CHARACTER

### a) Local Municipality

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

Level of unemployment:

Winterveldt is located within the City Of Tshwane Metropolitan (CoT). According to the CoT IDP (2011-2016) the unemployment within the municipality is approximately 14.8% and has the lowest unemployment rate as compared to other metropolitan municipalities in Gauteng. Approximately 14% of males and 15.5% of females are not employed within the municipality and this percentage is largely dominated by the black population group with approximately 18% of unemployment. The Madibeng Local Municipality has unemployment rate of 34%.

Economic profile of local municipality:

The CoT space economy has been for a long time propelled by the heavy industrial development in the areas of manufacturing. The CoT plays an important role in the economy of the Gauteng Province, featuring a strong manufacturing sector, particularly the automotive industry, metal production, machinery and household appliances, followed by the manufacturing of transport equipment. The other main economic sectors in the Municipality's area are community service followed by finance. The CoT continues to register remarkable economic performance as highlighted by its GVA of R157 billion and Gross Value Added (GVA) growth rate of 5,9% in 2007. The GVA did not change significantly since 2008, despite the global economic recession it remained at 6% in the 2009/10 financial year (CoT IDP, 2011-2016).

The Madibeng Municipal area is characterized by a diverse economy, including strong agriculture, mining, and manufacturing and tourism sectors. Although these sectors already contribute a large percentage to the aggregate Gross Geographic Product (GGP), they still have the ability and potential to induce and accommodate economic growth and development. The most prominent economic activities include manufacturing, mining and agriculture. Mining is tending to out-perform the agriculture sector. The area is the world's third largest chrome producer and includes the richest Platinum Group Metals Reserve (situated on the Merensky Reef). Manufacturing is the dominant sector, with motor industry related activities predominant (Madibeng IDP, 2011-2016).

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Level of education:

The measure of achievement of the education system is observed by looking at the highest level of education for those individuals aged 20 years and above. Six percent (5.9%) of these Tshwane residents have no schooling while Madibeng has 7.80%. A big number (40.6%) in Tshwane Metro have not completed secondary school and the proportion of those respondents who have completed matric has been reducing since 2001 across all regions. Approximately 7.30% of Madibeng's population have completed matric.

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

What is the expected capital value of the activity on completion?	R11,591,223.01
What is the expected yearly income that will be generated by or as a result of the activity?	This information will be provided at a later stage
Will the activity contribute to service infrastructure?	YES√ NO
Is the activity a public amenity?	YES√ NO
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	Unknown
What is the expected value of the employment opportunities during the development and construction phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	Unknown
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unknown,
What is the expected current value of the employment opportunities during the first 10 years?	Unknown, these assessments are done late in the process, during construction and operational phase.
What percentage of this will accrue to previously disadvantaged individuals?	Unknown, these assessments are done late in the process, during construction and operational phase.

## 9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or [BGIShelp@sanbi.org](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. **Please refer to Appendix A**

- 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)	<p><b>CBA</b> - Much of the proposed powerline alignment as well as the proposed Dipompong substation and alternatives locality are situated within a CBA 2, indicating that these areas are remaining natural patches larger than 5ha of provincially endangered and vulnerable ecosystems (vegetation types), i.e. the amount remaining intact of this vegetation type is less than 60%. Any further transformation of these vegetation types should be limited to existing transformed or heavily degraded areas. Therefore the proposed routes should be discussed with the North West Department of Agriculture, Conservation, Environment and Rural Development and the route be aligned as much as possible within already transformed vegetation.</p> <p>The Tswaing substation is proposed to be situated about 700m north-western corner of the Tswaing Nature Reserve (Protected Area Type 1) whereas the Tswaing alternative substations are situated within a CBA. According to the North West Biodiversity Conservation Assessment the proposed substation is situated on the edge of a CBA.</p>

				<p><b>ESA</b> - The proposed powerline from the GaRankuwa substation aligns westward through an area indicated by GDARD to be Important for conservation. This area is associated with natural vegetation as well as plants of conservation concern that has previously been recorded here. An ESA associated with a tributary of the Sand River is situated directly west of Ga-Rankuwa substation where it will be crossed by the proposed Ga-Rankuwa-Dipompong powerline, while an ESA associated with the Soutpanspruit is situated west of the proposed Tswaing substation and alternative and will be crossed by the Dipompong-Tswaing powerline.</p>
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The proposed route alternatives do traverse areas considered to be and Ecological Support Areas as indicated in the Gauteng C-Plan 3.3 and Critical Biodiversity Areas as indicated by the North West Biodiversity Conservation Assessment.

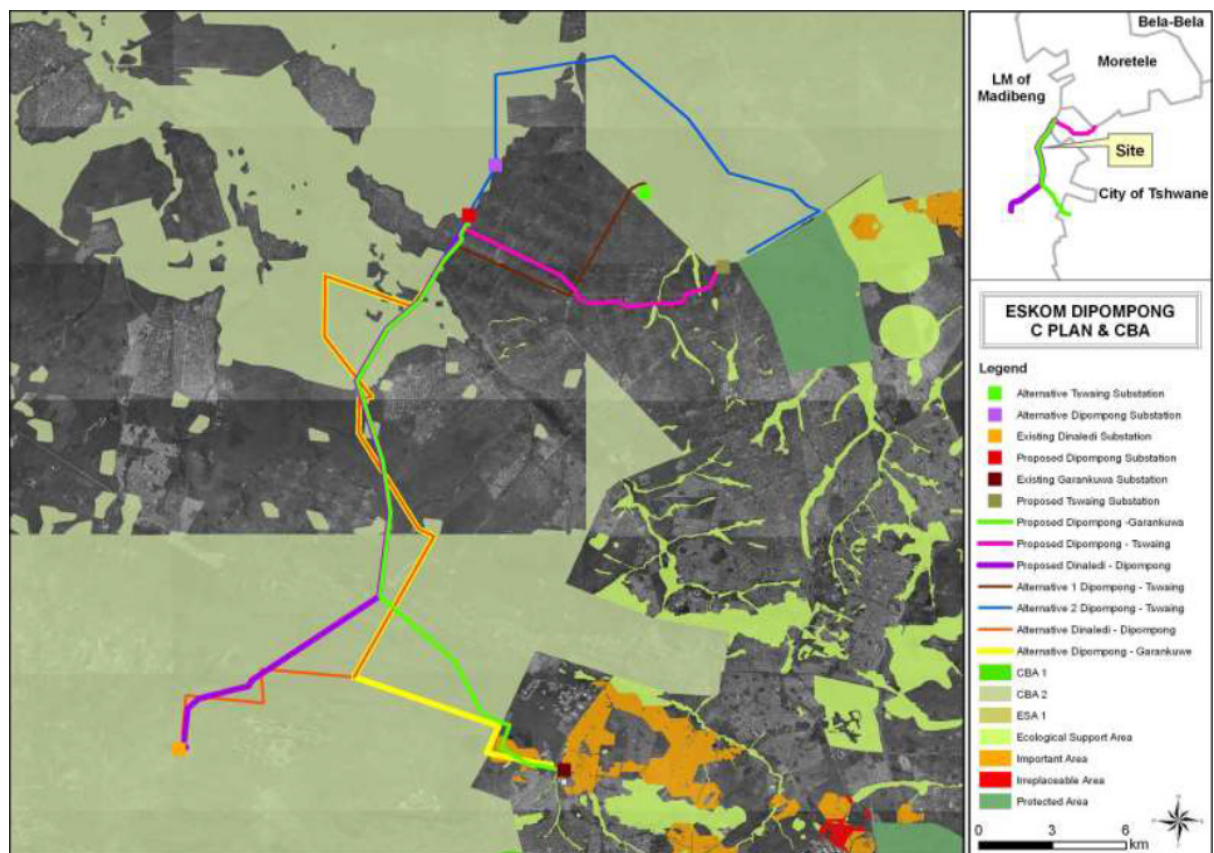


Figure 10: The route alternatives in relation to the Gauteng Conservation Plan and the North West Biodiversity Conservation Assessment

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	40%	The area is dominated by Bushveld vegetation ( <i>Acacia</i> -dominated Bushveld; Mixed Bushveld and Historically cultivated bushveld / secondary Bushveld); Vegetation on rocky outcrops; and Riparian vegetation and vegetation within wetlands. According to the land cover data, much of the proposed Ga-Rankuwa-Dipompong and Dinaledi-Dipompong routes traverse natural areas
Near Natural (includes areas with low to moderate level of alien invasive plants)	15%	Exotic alien vegetation present within riparian or wetland areas includes <i>Melia azedarach</i> (Seringa), <i>Sesbania punica</i> (Red Sesbania), <i>Lantana camara</i> and <i>Xanthium strumarium</i> (Large Cocklebur). The historic plots in the Winterveldt area comprise of bushveld with some encroacher species present along with other signs of past disturbances.
Degraded (includes areas heavily invaded by alien plants)	25 %	Historic plots in the Winterveldt area shows to be have been overgrazed and show signs of encroacher species <i>Dichrostachys</i> . <i>Overgrazing has also left</i> the riparian areas vulnerable to invasion by alien vegetation (because they are good dispersal routes for seeds). Exotic alien vegetation observed within riparian or wetland areas included <i>Melia azedarach</i> (Seringa), <i>Sesbania punica</i> (Red Sesbania), <i>Lantana camara</i> and <i>Xanthium strumarium</i> (Large Cocklebur).
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	20 %	Residential settlements, cultivation, grazing and hardened surfaces such as driveways and roads.

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- c) **Complete the table to indicate:**
- (i) the type of vegetation, including its ecosystem status, present on the site; and
  - (ii) whether an aquatic ecosystem is present on site.

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



- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

**Flora**

The study site is situated within the Savanna Biome of South Africa and in specific within the Central Bushveld Bioregion (Mucina & Rutherford, 2006). The study area is dominated by three vegetation types, the Springbokvlakte Thornveld, Central Sandy Bushveld and Marikana Thornveld. Both the Marikana Thornveld and the Springbokvlakte Thornveld is listed as Vulnerable ecosystem as the remaining natural habitat is only about 60% of its original extent. The vegetation types are geographically represented in Figure 11.

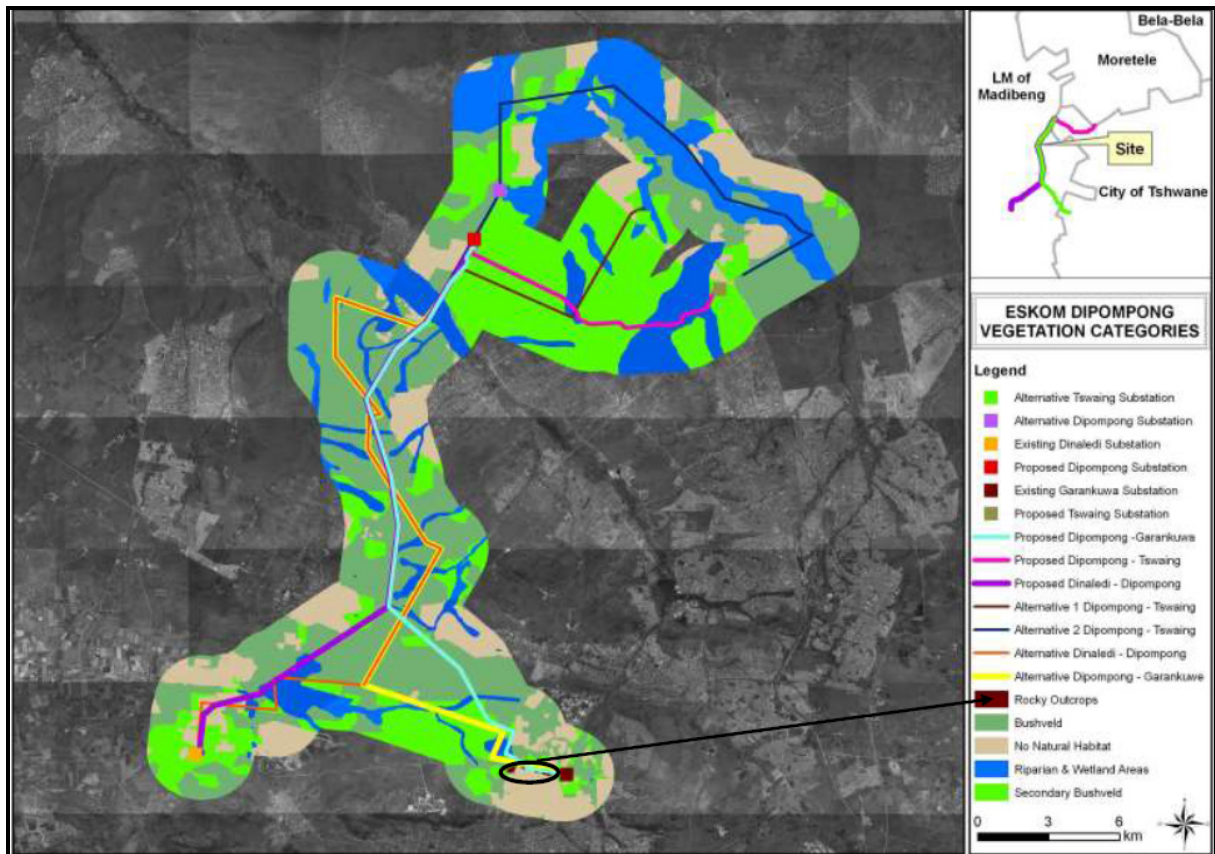


Figure 11: Vegetation types of the area that the proposed developments are situated in

The area studied comprised of bushveld dominated by fine-leaved, thorny trees (i.e. *Acacia* species). The bushveld vegetation varied from open woodland (10-35% tree cover between 2.5- 20m height) to lower open bushland (10-35% tree cover 1 - 2.5m in height) (Willis, 2002). The dominant species within the bushveld remained much the same for the extent of the powerline, although some variation was noted. Furthermore, within the bushveld vegetation, portions of varied vegetation were found on rocky outcrops and along drainage lines or wetland areas (Limosella, 2013). Therefore, three broad vegetation communities are found in the area, namely, Bushveld vegetation (*Acacia*-dominated Bushveld, Mixed

Bushveld, Historically cultivated bushveld / secondary Bushveld), Vegetation on rocky outcrops; and Riparian vegetation and vegetation within wetlands.

***Bushveld vegetation (Acacia-dominated Bushveld, Mixed Bushveld, Historically cultivated bushveld / secondary Bushveld)***

The tree layer comprised mainly of fine-leaved *Acacia*-species of which the dominant species vary mainly due to the soil present along the powerline routes, as well as past land uses. For example, clay/turf soils were dominated by *Acacia tortilis* (Haak-en-Steek), *A. karroo* (Sweet Thorn) and *A. nilotica* (Scanted Thorn), whereas sandy soils also included broad leaved species such as *Boscia foetida* (Sheppard's tree), *Combretum apiculatum*, *C zeyheri* and *Terminalia sericia* (Silver Cluster Leaf). Towards the northern extent of the alignment, encroacher trees such as *Acacia melifera* (Swarthaak) and the shrublet *Acacia tenuispina* were noted. The tree *Ziziphus mucronata* (Buffalo-thorn) grew throughout the area studied.

The centre portion of the proposed Ga-Rankuwa-Dipompong and Dinaledi-Dipompong route alignments and alternatives comprised mixed bushveld wherein more broad leaved species were identified alongside the dominant *Acacia* species, than in the northern and southern extents of the proposed powerline routes. Broad leaf species included *Combretum apiculatum*, *Czeyheri* and *Searsia pyroides*

Historic aerial images and land cover data indicated that much of the portion between GaRankuwa substation and Dinaledi was cultivated / cleared in the past. However, these areas are now fallow and pioneer trees such as *Acacia karroo* (Sweet Thorn) dominated the area. Much of the areas are degraded were historically cultivated by small scale farmers/subsistence farmers. Overgrazed areas, especially within the northern extent of the powerline are evident by the presence of large numbers of *Acacia melifera* (Black Thorn) and *Dihrostachys cinerea* (Lantern Bush).

***Rocky outcrop vegetation***

Ridges and rocky outcrops are usually characterized by high biodiversity and therefore their protection contributes to conservation of biodiversity. According to climate change modelling, level topography will be particularly sensitive to future climate change and major extinction in these areas can be expected (Rutherford *et al.*, 2001). The rocky outcrops are largely limited to the southern extent of the proposed Ga-Rankuwa-Dipompong powerline and its alternatives, in close proximity to the GaRankuwa substation. These areas are characterised by shallow, rocky soils and rocky sheets colonised by plant species that prefer to grow in rocky areas such as *Pouzolzia mixta* (Soap Nettle), *Indigofera zeyheri* and *Triomfetta sonderii*. the rocky outcrops provide habitat for other species of conservation concern such as the protected tree *Sclerocarya birrea* subsp *caffra* (Morula), as well as species that was not observed at the time of the field survey, but still has a high likelihood of occurring e.g. *Callilepis leptophylla*, a Declining plant species and *Adromischus umbraticola* subsp. *umbraticola*, a Near-Threatened species

***Riparian Vegetation and vegetation within wetlands***

Due to the presence of the Rosespruit, Sand River, Tolwane River and the Soutpanspruit River and their tributaries, numerous riparian areas are present along the proposed route alignments.

Although most of the tributaries are non-perennial, the vegetation density increases in proximity to the rivers or the vegetation composition changed. Dry riparian areas included tree cover of *Acacia karroo*,

*Euclea undulata* and the protected *Combretum imberbe*. Most of the non-perennial rivers and/or drainage lines were associated with elevated soil moisture and plant species that are adapted to grow in higher soil moisture for at least a couple of months per year e.g. the sedge *Shoenoplectus corymbosus*, *Pycreus mundtii* and grasses such as *Ischaemum afrum* (Turf Grass), *I. fasciculatum* (Hippo Grass), *Digitaria eriantha* (Common Finger Grass), *Chloris virgata* and the exotic grass *Paspalum dilatatum* (Dallis Grass). These areas correspond to wetland layers (national and provincial) and are perceived to be wetland areas. A Flora Assessment was conducted for the study area and the full report is attached in Appendix D2.

**Fauna**

**Amphibians**

The amphibian species expected to occur in the study area only the Giant Bullfrog (*Pyxicephalus adspersus*) is listed as Near Threatened by Minter *et al.* (2004). The Giant Bullfrog is listed as Least Concern on a global level and Near Threatened in South Africa. The survey period occurred during unfavourable conditions therefore the presence of this species could not be determined. Table 5 indicates the amphibian specie which may occur along the proposed routes.

**Table 4: Amphibian species which may occur within the study area.**

SCIENTIFIC NAME	COMMON NAME	RED DATA STATUS
<i>Cacosternum boettgeri</i>	Boettger's Dainty Frog	Least Concern
<i>Kassina senegalensis</i>	Bubbling kassina	Least Concern
<i>Phrynobatrachus natalensis</i>	Natal Dwarf Puddle Frog	Least Concern
<i>Phrynomantis bifasciatus</i>	Banded Rubber Frog	Least Concern
<i>Ptychadena anchietae</i>	Plain Grass Frog	Least Concern
<i>Afrana angolensis</i>	Common river frog	Least Concern
<i>Amietia vertebralis</i>	Large-mouthed frog	Least Concern
<i>Schismaderma carens</i>	African red toad	Least Concern
<i>Ptychadena mossambica</i>	Broad-banded Grass Frog	Least Concern
<i>Tomopterna natalensis</i>	Natal Sand Frog	Least Concern
<i>Bufo fenoulheti</i>	Northern Pygmy Toad	Least Concern
<i>Pyxicephalus adspersus</i>	African bullfrog	Near Threatened
<i>Tomopterna cryptotis</i>	Common Sand Frog	Least Concern
<i>Xenopus laevis</i>	African clawed frog	Least Concern
<i>Breviceps adspersus</i>	Common Rain Frog	Least Concern
<i>Bufo garmani</i>		Least Concern
<i>Bufo gutturalis</i>	Guttural Toad	Least Concern
<i>Bufo poweri</i>		Least Concern

**Reptiles**

Common, opportunistic lizard species such as skinks and geckos are expected to be found within the study area in relatively high numbers as they have adapted to live in close proximity to humans. The natural bushveld and thornveld and wetland areas are likely to provide suitable habitat for a variety of reptile species such as rare snakes, common snakes and larger lizards which are not of conservation concern.

The natural bushveld and thornveld and wetland areas are likely to provide suitable habitat for a variety of reptile species such as rare snakes, common snakes and larger lizards which are not of conservation concern. Considering the disturbed nature of the assessed site it is also expected for the reptile assemblages to be altered and that the common species outnumber the rare species. The reptile assemblages of the area and site are considered to be altered and it is not expected for the proposed development to impact reptile assemblages should the mitigation measures recommended in this report be followed.

### ***Mammals***

From the habitat present, the large number of settlements in association with open areas in the vicinity, it is considered likely for opportunistic mammal species to be present within the study area. These mammal species would be able to survive and thrive within the open grassland and savannah areas, even if they are disturbed and are able to co-exist with human habitation. These include species such as the common house mouse (*Mus musculus*), the multimammate mouse (*Mastomys coucha*), the common rat (*Rattus rattus*), the scrub hare (*Lepus saxatalis*) and the black backed jackal (*Canis mesomelas*). In addition, it is likely for insectivores such as shrews to be present within the study area bearing in mind the rivers and wetlands within the study area. It is also likely that there will be mongooses present, likely the slender mongoose (*Galerella sanguinea*). Please refer to Appendix D4 for a detailed Faunal Assessment Report.

### ***Invertebrates***

No detailed assessment of invertebrate species was undertaken. These species are mobile in nature and are not likely to be affected by the proposed construction. .

### **Avifauna**

Woodland (or savanna) is the dominant natural vegetation type in the study area. The savanna biome contains a large variety of bird species (it is the most species-rich community in southern Africa) but very few bird species are restricted to this biome. It is also relatively well conserved compared to the grassland biome. Undisturbed savanna (e.g. large, formally protected areas such as the Kruger National Park) is particularly rich in large raptors, and forms the stronghold of Red Data species such as White-backed Vulture, Cape Vulture, Martial Eagle, Tawny Eagle, and Lappet-faced Vulture. Apart from Red Data species, it also serves as the stronghold of several non-Red Data raptor species, such as the Brown Snake Eagle *Circaetus cinereus*, Black-chested Snake Eagle *Circaetus pectoralis*, and a multitude of medium-sized raptors for example the migratory Steppe Buzzard *Buteo vulpinus*, African Harrier Hawk (Gymnogene) *Polyboroides typus*, Wahlberg's Eagle *Aquila wahlbergi* and African Hawk Eagle *Aquila spilogaster*. Apart from raptors, woodland in its undisturbed state is suitable for a wide range of other power line sensitive birds, including the Red Data Kori Bustard *Ardeotis kori* and Southern Ground-Hornbill *Bucorvus leadbeateri*.

Drainage lines and wetlands are important habitat for birds in that they act as corridors of microhabitat for waterbirds, and the large trees which are associated with drainage lines are important nesting substrate for birds, especially large raptors. The large pools that form after good rains persist well into

the dry season and the organisms that are trapped in those pools provide potential sources of food for Red Data species such as Yellow-billed Stork, African Openbill and Black Stork. A host of non-Red Data species is also dependant on drainage lines for food and shelter. An important habitat in the study area associated with drainage lines is the Soutpanspruit floodplain between Dipompong and Tswaing. This area may attract several Red Data species, such as African Grass-Owl, African Marsh-Harrier, Pallid Harrier and Black-winged Pratincole (the latter species was recorded there during the field inspection).

Man-made impoundments, although artificial in nature, can be very important for variety of birds, particularly water birds. Common species that could use dams and dam edges include Red-knobbed Coot *Fulica cristata*, Black-headed Heron *Ardea melanocephala*, African Darter *Anhinga rufa*, Blacksmith Lapwing *Vanellus armatus* and Egyptian Goose *Alopochen aegyptiaca*. Red Data species that could specifically be attracted to dams (or natural water bodies such as the salt pan at Tswaing) include Greater and Lesser Flamingo, Black Stork, Yellow-billed Stork, African Openbill and large raptor and vulture species, which need exposed shorelines to bath and drink.

Table 6 below provides a guideline of the species that could potentially be encountered anywhere within the QDGCs where suitable habitat is available, and should therefore not be used as a measure of actual densities along the proposed power line alignments. A detailed Avifaunal Assessment is attached in Appendix D7.

## BASIC ASSESSMENT REPORT

**Table 5: Species of conservation concern potentially occurring in the study area**  
**NT = Near threatened, VU= Vulnerable**

Species	Conservation Status (Barnes 2000)	Preferred habitat (Harrison <i>et al</i> 1997, Barnes 2000, Hockey <i>et al.</i> 2005, personal observations)	SABAP2 Reporting rate 2527DB (%)	SABAP2 Reporting rate 2527BD (%)	SABAP2 Reporting rate 2528AC (%)	Chance of occurrence at proposed development site
BLACK STORK <i>Ciconia nigra</i>	NT	Rivers, dams, cliffs. Could be a visitor to the Soutpanspruit and Tolwane rivers and larger dams. Sometimes roost on power lines.	<1%	-	-	Low
YELLOW-BILLED STORK <i>Mycteria ibis</i>	NT	Rivers, dams. Could be a visitor to the Soutpanspruit and Tolwane rivers and dams.	<1%	-	-	Low
RED-BILLED OXPECKER <i>Buphagus erythrorhynchus</i>	NT	Woodland, in association with livestock.	<1%	11.1%	-	Medium
SECRETARYBIRD <i>Sagittarius serpentarius</i>	NT	Open woodland and old lands.	-	2.5%	-	Low
GREATER FLAMINGO <i>Phoenicopterus ruber</i>	NT	Open shallow, eutrophic wetlands. Could occur sporadically at Tswaing saltpan	<1%	-	1.3%	Low
LESSER FLAMINGO <i>Phoenicopterus minor</i>	NT	Open shallow, eutrophic wetlands. Could occur sporadically at Tswaing saltpan	-	-	-	Low
LANNER FALCON <i>Falco biarmicus</i>	NT	Generally prefers open habitat, but exploits a wide range of habitats. Sometimes use crow nests on transmission towers. May visit urban areas to hunt feral pigeons.	3.7%	3.7%	1.3%	Medium
YELLOW-THROATED SANDGROUSE <i>Pterocles gutturalis</i>	NT	Grassland, arable lands on black turf soil. May occur as a vagrant.	-	-	-	Low
HALF-COLLARED KINGFISHER <i>Alcedo semitorquata</i>	NT	Fast-flowing streams with clear water and well-wooded banks. Could occur along the Soutpanspruit and Towlane rivers	<1%	-	-	Medium
CAPE VULTURE <i>Gyps coprotheres</i>	VU	Large cliffs for breeding and roosting, open woodland and grassland. Roosts on transmission lines. May be present at carcasses.	7.8%	1.2%	-	Low

## BASIC ASSESSMENT REPORT

Species	Conservation Status (Barnes 2000)	Preferred habitat (Harrison <i>et al</i> 1997, Barnes 2000, Hockey <i>et al.</i> 2005, personal observations)	SABAP2 Reporting rate 2527DB (%)	SABAP2 Reporting rate 2527BD (%)	SABAP2 Reporting rate 2528AC (%)	Chance of occurrence at proposed development site
HALF-COLLARED KINGFISHER <i>Alcedo semitorquata</i>	NT	Fast-flowing streams with clear water and well-wooded banks. Could occur along the Soutpanspruit and Towlane rivers	<1%	-	-	Medium
CAPE VULTURE <i>Gyps coprotheres</i>	VU	Large cliffs for breeding and roosting, open woodland and grassland. Roosts on transmission lines. May be present at carcasses.	7.8%	1.2%	-	Low
AFRICAN GRASS-OWL <i>Tyto capensis</i>	VU	Treeless areas associated with damp substrata, mainly marshes and vleis. Favours patches of tall, rank grass, sedges or weeds. Also areas with dense ground cover in scattered thorn scrub, usually close to water and among thick stands of grass ( <i>Stenotaphrum</i> sp) and sedge ( <i>Juncus</i> sp). May occur at the Soutpanspruit floodplain	-	-	-	Medium
AFRICAN MARSH-HARRIER <i>Circus ranivorus</i>	VU	Marshes, vleis and wetlands. May occur at the Soutpanspruit floodplain.	-	-	-	Medium
LESSER KESTREL <i>Falco naumanni</i>	VU	Grassland and old lands	-	2.5	-	Low
PALLID HARRIER <i>Circus macrourus</i>	NT	Grassland, floodplains and cultivated fields to a lesser extent. May occur at Soutpanspruit floodplain.	-	-	-	Low
BLACK-WINGED PRATINCOLE <i>Glareola nordmanni</i>	NT	Grassland, floodplains and cultivated fields. Recorded at Soutpanspruit floodplain during site visit.	-	-	-	High
MARTIAL EAGLE <i>Polemaetus bellicosus</i>	VU	Woodland. Could occur sparsely in woodland areas.	-	-	-	Low
AFRICAN OPENBILL <i>Anastomus lamelligerus</i>	NT	Wetlands, floodplains, shallow rivers, dams and lagoons.	<1%	-	-	Low

## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT AND NOTICE

<b>Publication name</b>	Daily Sun Newspaper	
<b>Date published</b>	Daily Sun - Thursday 20 June 2013	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	Rankotia 25° 34' 27.29" S	27° 51' 46.26" E
	Odi Aerodrome-Gabalatsane 25° 32' 49.76" S	27° 56' 57.86" E
	Ga-Rarankuwa – S 25° 35' 21.75" E	27° 59' 24.69" E
	Madidi – S 25° 27' 03.58" S	27° 57' 11.71" E
	Winterveld – S 25° 25' 20.59" S	28° 01' 38.06" E
	Ga-Rankuwa Unit 17 25° 34' 16.25" S	27° 59' 18.88" E
<b>Date placed</b>	Thursday 20 June 2013	

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

The Methodology that has been adopted to ensure a highly consultative and interactive public participation process is outlined below.

#### **Identification of Interested and Affected Parties (I&APs)**

The interested and affected parties (I&APs) in and around the study area have been identified and a dedicated stakeholder database for the project has been developed. The stakeholder database has been split in two, i.e. one for the landowners and the other for the various I&APs, NGOs, Government departments, etc. A dedicated stakeholder database for the project is fundamental to the ultimate success of the consultation process.

The proposed project and its BAR process were announced in the study area in the following ways:

#### **Site Visit**

A site visit was conducted on the 22<sup>nd</sup> May 2013. The site visit was also used to identify additional key stakeholders, interested and affected parties (I&APs), place site notices as well as distribute the public participation documents (letter to stakeholders, comment, sheet and BID) to the community. During the site visit During this process the public participation informed the interested and affected parties (I&APs) about the project and how they can participate.

#### **Media Announcements**

An English newspaper Advertisement was compiled and placed on the Daily Sun Newspaper on 20 June 2013 informing stakeholders about the proposed project and inviting them to participate and



register as interested and affected parties (see **Appendix E1**).

**Background Information Document (BID)**

Background Information Documents (BID) (English, Afrikaans and isiZulu) were prepared as a basis for discussion with stakeholders about the project. The BID introduced the project to the stakeholders, provided the rationale for the project, the BAR and public participation processes to be followed in the project, etc. The BID included a registration/comment sheet which was available in English. A letter of invitation addressed to I&APs captured on the database, accompanied the BID and a registration/comment sheet (which was prepared in the three languages). The BID was distributed by hand during the site visit and forwarded electronically to those stakeholders that have electronic mail (see **Appendix E2 for Written Notices to I&APs and BID**).

**Notice boards**

Site notices were fixed at various conspicuous areas within the proposed site on 20 June 2013. Those areas include Rankotia , Odi Aerodrome-Gabalatsane, Ga-Rarankuwa, Madidi, Winterveld, Ga-Rankuwa Unit 17 (see **Appendix E1 for proof of Site Notices**).

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>
Mr Lemson Betha	Wildlife and Environment Society of South Africa (WESSA) - Regional manager	<a href="mailto:lbetha@wessanorth.co.za">lbetha@wessanorth.co.za</a>
Mr Mofokeng	SHERQ Manager, Evraz Vametco Alloy (Pty) Ltd	<a href="mailto:'imofokeng@evrazvametco.co.za">'imofokeng@evrazvametco.co.za</a>
Ms Lenda Kwenda	Ward Councillor (Winterveldt South – Ward 19)	<a href="mailto:lendakwenda@yahoo.com">lendakwenda@yahoo.com</a>
Mr Jabulan Paulus Rammushi	Ward Councillor Ga-Rakuwa Unit 15, 16, 17, 20, 23, 24, 25, 4, 5 (North) Ward 30	<a href="mailto:jabulaniR@tshwane.gov.za">jabulaniR@tshwane.gov.za</a>
Mr Alfred Phahlane	Ward Councillor, Tswaing Nature Reserve, Twaing Village (Soutpan) Ward 13	<a href="mailto:alfredP@tshwane.gov.za">alfredP@tshwane.gov.za</a>
Mr Ramabele Matlala	Land Owner	Private Bag x120 Mmabatho,2735
Mr Amos Motome Mapheko	Ward Councillor, Winterveldt AH,AH X 1 (north) Ward 19	<a href="mailto:mamphekoamos@yahoo.com">mamphekoamos@yahoo.com</a>
Mr Hendrik Phalwane	Ward Councillor, Dipompong Ward 34 -	<a href="mailto:hendrick.phalwane22@gmail.com">hendrick.phalwane22@gmail.com</a>

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Mr Machete Marcus	Ward Councillor, Kgabalatsane Ward 10	-
Mr Masina Siphon	Ward Councillor, Rabokala Ward 35	-
Ms Nthangeni Suzan	Ward Councillor, Madidi Ward 3	<a href="mailto:suzannthangeni@madibeng.gov.za">suzannthangeni@madibeng.gov.za</a>
Mr Boet Denysschen	Jets-R-Us Flying Site (Air strip)	<a href="mailto:dennys@ballmail.co.za">dennys@ballmail.co.za</a>

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

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

**3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES -**

Summary of main issues raised by I&APs	Summary of response from EAP
Is the rehabilitation plan of the proposed project already in place? And if so it must be forwarded to the municipality and if it is not available it must be drafted.	A draft general wetland rehabilitation and monitoring plan for the proposed project is in place and has been forwarded to Madibeng Local Municipality.
All construction camp impacts and mitigation measures must be included in the EMP and the municipality be informed of the exact location of the construction camp.	The draft EMPr was updated to reflect all the construction mitigation measures.
All the recommendations and mitigation measures in the report and specialist studies in the attached appendices must be adhered to during the construction and operational phases of the development	Comment has been incorporated into the Final BAR
Alien and Invasive plant species should be eradicated and managed on the study area according to the Conservation of Agriculture Resources Act (Act no. 43 of 1983) and Section 28 of the National Environmental Management Act, 1998. The Invasive species control plan should be implemented at least every 3 months after completion of the activity. All areas disturbed as part of the proposed activity will be deemed as the study area	The draft EMPr was updated to reflect alien and invasive plant species management mitigation measures proposed by the City of Tshwane Metropolitan Municipality
The Tolwane River, Rosespruit, Sandspruit and Soutpanspruit should be regarded as "No-Go" areas for the proposed power lines and substations, monopoles, access tracks and related activities. The 1: 100 year floodline and a	Comment has been incorporated into the Final BAR

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<p>32m line from the centre of the spruit, whichever is the greatest will be regarded as “No-Go” areas. Should the applicant decide to place any structure within the wetland areas or its buffer zone or within the floodlines, a Water Use License is required from DWA according to the Water Act.</p>	
<p>SAHRA recommends that a walk-down of the power line route be done to determine if the individual pole structures will have an impact on any sites, features or objects of cultural heritage significance</p>	<p>Comment has been incorporated into the Final BAR</p>
<p>Employment opportunities and skills transfer to local communities</p>	<p>Eskom acknowledges the need for employment for the local community members. The construction of a power line is a highly specialised field requiring specific expertise. The contractor will utilise his own skilled team. However, the construction tender will have a clause that will bind the contractor to employ local labourers for menial labour, e.g. clearing of land for the establishment of the construction camps, as well as other manual work that does not require specialised labour. Local labourers will be hired through ward councillors, meaning that the communities will liaise with their ward councillors to get employment during the construction phase.</p>
<p>How is the community going to benefit from the proposed project?</p>	<p>The proposed power lines and substations will ensure that there is back feeding of electricity within the area. The new substations will create a second source for electricity. This will mean that if there is a technical problem from one source, customers can be fed from the other source whilst repairs are done. This will minimise the average duration of time customers have to remain without electricity.</p>
<p>Why was the community not involved in choosing of substation sites, since they know the area better?</p>	<p>Choosing of a substation and a power line route requires a number of technical issues to be considered and it involves expertise such as engineers, planners, environmentalists and etc. Final decision on the substation site must satisfy or meet the requirements of all expertise involved.</p>
<p>The proposed lines run through private properties, how will land owners benefit?</p>	<p>Eskom will negotiate with affected land owners. During the negotiation process Eskom will employ independent property evaluators who will determine the value of each property that will be within the required servitude and the land owners will be paid according to the results provided by</p>

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	<p>the evaluators. Compensations for Tribal land will be paid into the Tribal's Trust Board, whereas the other owners of land that will be used for the project will be paid individually. Land owners will no longer use the land for anything after Eskom has secured servitude as no activity is allowed under the line.</p>
<p>How was the route selection carried out, did Eskom conduct a survey before selecting the proposed routes?</p>	<p>The route selection was first conducted through desktop studies that involved a number of expertise such as environmental, engineers, planners and etc. The route selection considered a number of issues that must be taken into consideration for the construction of power line, for e.g. the environmentalist assist in identifying sensitive environments that may be impacted on, the engineers considers the cost of constructing the line. Planners take into consideration the distance between proposed sites and the planned supply area. After the desktop studies, the team drove the route to familiarise themselves as well as try to identify potential hindrances should there be any. The site was followed by the EIA process which identifies potential positive and negative environmental impacts of the proposed line as well as come up with mitigation measures to reduce negative impacts and enhance positives one.</p>
<p>After the studies have fully done/completed how long will it take for the construction to commence?</p>	<p>We are anticipating submitting the Final Basic Assessment Report (BAR) to the Department of Environmental Affairs (DEA) by December this year after having public meetings with the affected communities as well as incorporating their comments/issues in the Final BAR. Should an Environmental Authorisation (EA) be granted, Eskom will then start with the negotiations and consultation with the stakeholders located within the routes so as to negotiate for a servitude right. Construction can only take place after the servitude negotiations have been completed, and we are have planned to complete negotiations by June 2014</p>
<p>There was no proper consultation of the public.</p>	<p>The EIA process is guided by environmental legislation. To meet the requirements of legislation/regulations we have announced the project in the media by placing an advert in the Daily Sun Newspaper on 20<sup>th</sup> June; flyers have been hand delivered within the project area, we</p>

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	<p>also placed site notices in various conspicuous places with the proposed routes; we have emailed Background Information Documents (BIDs) to various state departments like Department of Water Affairs, Land Affairs, Public Works etc. Envirolution did not receive any comments from Interested and Affected Parties. Focus group Meetings with ward councillors were arranged to discuss the project and this Public Meeting was then planned to ensure that the public is indeed made aware of the proposed project and to capture their inputs/comments. In a nutshell, proper public as required by legislation by implemented.</p>
<p>How is Eskom going to ensure that the line is not constructed close to the graves?</p>	<p>Normally, power lines affect graves if the pylon is erected directly onto the grave. This impact can be mitigated by shifting the position of the pylon to avoid the grave(s). A Heritage Impact Assessment study was conducted for the proposed project, the study aimed to identify any heritage site that could be impacted on by the proposed power lines. The study found that the proposed project will not impact on any heritage sites that exist throughout the study area. However, in a case where heritage sites (including graves) are found to be within a line they are avoided as much as possible during the construction of a powerline</p>
<p>Should the line run over people's properties, will they be relocated?</p>	<p>Eskom try by all means to avoid people's house when planning a route as well as avoid having many turns for the line as it becomes too expensive to construct. However, we sometimes relocate houses in a case we are unable to avoid them, this happens especially in built up areas. No permanent residence is allowed within the servitude. The servitude is required for the safe operation of the power line and reliability of electricity supply to consumers.</p> <p>Eskom has a clear policy on relocations, therefore negotiations with those families or community member who may be relocated will be held with the view to improve their lives by building better houses than they owned before.</p>

#### 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
City of Tshwane Metropolitan Municipality	Ms Rudzani Mukheli	012 358 8731		<a href="mailto:rudzanim@tshwane.gov.za">rudzanim@tshwane.gov.za</a>	PO Box 440, Pretoria,0001
Madibeng Local Municipality	Mr Mpho Magasa	012 318 9299	086 265 3616	<a href="mailto:mphomagasa@madibeng.gov.za">mphomagasa@madibeng.gov.za</a>	P O Box 106, Brits,0250
Department of Water Affairs	Mr Justice Maluleke	082 804 5490		<a href="mailto:teo@dwa.gov.za">teo@dwa.gov.za</a>	Bothongo Plaza East, 15 <sup>th</sup> Floor, 285 Schoeman Street, Pretoria, 0001
Department of Rural Development and Land Reform	Mr L Bogatsu	012 310 6620	012 324-5812	<a href="mailto:libogatsu@ruraldevelopment.gov.za">libogatsu@ruraldevelopment.gov.za</a>	Private Bag X03, Arcadia, Pretoria, 0001
Department of Public Works	Ms Nyeleti Makhuvele	012 310 5907	012 310 5184	<a href="mailto:nyeleti.makhuvele@dpw.co.za">nyeleti.makhuvele@dpw.co.za</a>	Private Bag X229, Pretoria, 0001
Department of Health			012 395 9150	<a href="mailto:khanyv@health.gov.za">khanyv@health.gov.za</a>	Private Bag X828, Pretoria, 0001
Department of Agriculture, Forestry and Fisheries	Ms Alice Baxter	012 319 6529	0123196193	<a href="mailto:AliceBDPlantHealth@daff.gov.za">AliceBDPlantHealth@daff.gov.za</a>	Private Bag x250, Pretoria, 0001
Gauteng Department of Agriculture and Rural Development	Mr Nhlanhla Makhathini	011 355 1434	011 333 0620	<a href="mailto:nhlanhla.makhathini@gauteng.gov.za">nhlanhla.makhathini@gauteng.gov.za</a>	P O Box 8769, Johannesburg, 2000
National Department of Human Settlement	Ms Thando Madonsela	012 44 5226	012341 2998	<a href="mailto:Thando.madonsela@dhs.gov.za">Thando.madonsela@dhs.gov.za</a>	Private Bag X644, Pretoria, 0001

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.

### 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 and Rating Methodology** (**The impact assessment methodology is attached as Appendix G2.**)

The significance of impacts will be rated from **Low, Medium** to **High** where:

**Low:** Little influence on the receiving environment

**Medium:** Will have an influence on the receiving environment unless mitigated

**High:** Will have an influence on the receiving environment regardless of mitigation

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



## BASIC ASSESSMENT REPORT

*For the purposes of this assessment and clarification, the proposed routes (Proposed Dinaledi Dipompong and Proposed Garankuwa Dipompong Powerline, Alternatives Dinaledi Dipompong and Alternative Garankuwa Dipompong) located to the south of Dipompong will be assessed collectively as these follow a similar geographical environment. All these powerlines transect wetlands and riparian areas, private farm lands and are located in build up areas. Impacts from the abovementioned powerline are likely to be similar.*

<b>1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG</b>				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
<b>CONSTRUCTION PHASE</b>				
Impact on Fauna	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Loss of faunal habitat / Fragmentation from the clearing of vegetation communities for construction of the associated powerline infrastructure and servitude</li> <li>• Faunal Disturbance from construction activities.i.e. noise</li> <li>• Killing and snaring of fauna species may occur from construction personnel</li> </ul>	High	<ul style="list-style-type: none"> <li>• Only areas where construction is to occur should be cleared of vegetation;</li> <li>• No natural watercourses, pans, or wetlands should be disturbed by the development with a 500m buffer zone (marked during the construction phase) allowed for between the edge of any of the above mentioned features or an appropriate buffer zone as determined by a wetland specialist;</li> <li>• The extent of the construction should be confined to disturbed areas or those identified as having a low / medium ecological sensitivity and demarcated.</li> <li>• Where areas of high ecological sensitivity need to be disturbed, the necessary permits and mitigation measures recommended by the wetland specialist should be implemented.</li> <li>• No construction vehicles or personnel should be allowed to leave the demarcated area unless authorised to do so</li> <li>• Areas identified with high ecological sensitivity should be avoided during construction activities.</li> <li>• Areas that are not part of the site development plan should be marked as no-go zones;</li> <li>• The development should promote connectivity between ecologically important habitats by retaining natural corridors for the movement of fauna;</li> <li>• Roads should be planned to encourage faunal dispersal and minimize fragmentation of ecologically sensitive areas. Roads</li> </ul>	Medium

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			should preferably be maintained as gravel tracks; <ul style="list-style-type: none"> <li>• Construction activities should be limited to daylight hours; and</li> <li>• Construction vehicles transporting materials to and from the construction site must be covered to reduce the formation of dust.</li> <li>• Construction personnel should be informed of the Animal Protection Act no. 71 of 1962 and encouraged not to harm any wildlife; and</li> <li>• Construction personnel should undergo awareness training regarding fauna assemblages and the correct procedures to follow should fauna be found within the site. They should be encouraged</li> <li>• not to harm any wildlife. They should also be informed of any policies and procedures applicable for fauna and the environment.</li> </ul>	
Impacts on Avifauna	<i>Direct impacts:</i> Displacement due to habitat destruction and disturbance	Low	Restrict the construction activities to the construction footprint area. Avoid the removal of large trees.	Low
	Collisions with the earth wire of the proposed 132kV line - the greatest risk of collisions power lines.	Medium	<ul style="list-style-type: none"> <li>• The spans that cross drainage lines and wetland areas should be marked with Bird Flight Diverters on the earth wire of the line, five metres apart, alternating black and white</li> <li>• Identified high risk sections of the power line to be installed with a suitable anti bird collision marking device approved by Eskom, and as per Eskom standards.</li> </ul>	Low
	<b>Electrocutions</b> - Raptors and vultures that may occasionally forage in the study area	Medium	The poles should be fitted with bird perches on top of the poles to draw birds, particularly vultures, away from the potentially risky insulators	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impacts on Flora	<ul style="list-style-type: none"> <li>• Impact on the rocky outcrops</li> </ul>	Medium	<b>Mitigation measures for rocky outcrops</b> <ul style="list-style-type: none"> <li>• For the extent of the rocky outcrops, it is advisable that the Ga-</li> </ul>	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p>west of the Ga- Rankuwa substation</p> <ul style="list-style-type: none"> <li>• Impact on riparian and wetland areas, as well as natural bushveld</li> </ul>		<p>Rankuwa to Dipompong route be placed north of the existing powerline past the outcrops, where it will be the further away from the rocky outcrops.</p> <ul style="list-style-type: none"> <li>• For this stretch of the route, the Alternative route between Ga-Rankuwa substation and Dipompong is recommended, or moving the line north of the existing route</li> </ul> <p><b>Mitigation measures for riparian and wetland areas, as well as natural bushveld</b></p> <ul style="list-style-type: none"> <li>• The route alignments must be fixed through areas with the least vegetation sensitivity.</li> <li>• A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to sensitive environs.</li> <li>• Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.</li> <li>• No open fires are permitted within naturally vegetated areas.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• A vegetation rehabilitation plan should be implemented. Grass can be removed as sods and stored within transformed vegetation – remove alien invasive vegetation prior to storing grasslands sods in transformed areas. Smaller shrubs and bulbs should also be removed and used for rehabilitation. The plants must preferably be removed during the winter months and be replanted by latest springtime. The grass sods should not be stacked on top of each other. Once construction is completed, these sods should be used to rehabilitate the disturbed areas from where they have been removed. In the absence of timely rainfall, the sods should be watered well after planting and at least twice more over the next 2</li> </ul>	

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>weeks.</p> <ul style="list-style-type: none"> <li>• Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>• No activities should take place during rainy events and at least 2 days afterwards.</li> </ul>	
	<p>Possible destruction of plants of conservation concern and protected tree species</p> <ul style="list-style-type: none"> <li>• Both lines traverse historic localities of threatened plants (GDARD, 2011) and protected trees <i>Boscia albitrunca</i>, <i>Sclerocarya birrea subsp africana</i> and <i>Combretum imberbe</i>, <i>Gladiolus cf sericeovillosus</i> located to the north of the routes</li> <li>• Impact on the C PLAN Biodiversity Assessment. Both routes traverse C plan Important areas and CBA 2</li> </ul>		<ul style="list-style-type: none"> <li>• Prior to construction, the final route alignment should preferably be walked by a specialist to identify any possible plant species of conservation concern as well as protected tree species. Note that this should be done in the growing season of plants (Oct-March).</li> <li>• Although the secondary bushveld is regarded by this report as posing low constraint to the proposed powerline development, development should proceed with caution and it is advised that the final route alignment be walked by an ecologist or botanist and these plants removed and conserved if found to be within the development footprint.</li> <li>• Protected tree species was confirmed within the secondary bushveld.</li> <li>• The protected tree species along the powerline routes and within the substation footprint should preferably not be removed and only pruned where necessary. Note that removal and pruning will require a permit from the Department of Agriculture, Forestry and Fisheries (DAFF).</li> <li>• The population of <i>Gladiolus cf sericeovillosus</i> should be avoided by the proposed Dinaledi- Dipompong route. If not possible, these plants should be removed and relocated to suitable habitat nearby or kept under suitable growing conditions and re-established during rehabilitation of the construction footprint (Note, these plants may only be removed with the permission of the provincial authority - permit).</li> <li>• Implement a Plant Rescue and Rehabilitation Plan: Where the plants of conservation concern are deemed to be under threat from</li> </ul>	

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>the construction activity, the plants should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation after the construction.</p> <ul style="list-style-type: none"> <li>Construction workers may not tamper or remove these plants and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>Cordon off the sensitive vegetation that house the protected plant species and the plants of conservation concern and protect from construction activities and vehicles.</li> </ul>	
	<p><b>Indirect impacts:</b> Spread of alien invasive vegetation</p>	Medium	<ul style="list-style-type: none"> <li>Alien invasive species that were identified within the study area and in specific along the final route alignment should be removed prior to construction-related soil disturbances.</li> <li>Compile and implement an alien invasive monitoring plan to remove alien invasive plant species along the chosen route alignments, prior to construction.</li> <li>By removing these species, the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation.</li> <li>All alien seedlings and saplings must be removed as they become evident for the duration of construction.</li> <li>Manual / mechanical removal is preferred to chemical control.</li> <li>All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction areas. This should be verified by the ECO.</li> </ul>	Low
	<p><b>Cumulative impacts</b> None identified</p>	N/A	N/A	N/A
Impacts on Wetland	<ul style="list-style-type: none"> <li>Proposed route will cross 5 Wetland crossings and is</li> </ul>	High	<ul style="list-style-type: none"> <li>No activities should take place in the watercourses and associated buffer zone. Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is</li> </ul>	High

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p>located within a large area classified as aquatic CBA 1 and is closer to a mining area and farming land</p> <ul style="list-style-type: none"> <li>• Dinaledi Dipompong route will cross 7 Wetland crossings which are located within a large area classified as aquatic CBA 1.</li> <li>• Proposed Garankuwa Dipompong will transect 5 Wetland crossings which are located within a large area classified as CBA 1 and predominantly located in vacant land.</li> <li>• Alternative Garankuwa Dipompong will transect 7 Wetland crossings which are located within a large area classified as CBA 1 and is Predominantly located in vacant land</li> </ul> <p><b>Direct impacts:</b> Changing the quantity and fluctuation properties of the watercourse e.g. by damming the water during construction and sedimentation of the watercourse by placing pylons within wetland area or riparian area, thereby diverting or</p>		<p>subjected to authorization by means of a water use license.</p> <ul style="list-style-type: none"> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>• A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</li> <li>• Prevent pedestrian and vehicular access into the wetland and buffer areas as well as riparian areas.</li> <li>• Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses</li> <li>• Restrict the use of vehicles in the watercourses. If unavoidable, plan activities in wetlands areas to take place within the drier winter months and use equipment with the smallest possible footprint e.g. quad bikes</li> <li>• Plan watercourse crossings to take place at predetermined points such as where the wetland width (and thus area to be impacted) is the smallest</li> <li>• Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• Avoid linear disturbances that run parallel to a watercourse</li> <li>• Management of on-site water use and prevent stormwater or contaminated water directly entering the watercourse</li> <li>• Management of point discharges</li> <li>• Planning of construction site must include eventual rehabilitation / restoration of indigenous vegetative cover</li> <li>• Alien plant eradication and follow-up control activities prior to construction, to prevent spread into disturbed soils, as well as</li> </ul>	

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	impeding flow during construction		follow-up control during construction <ul style="list-style-type: none"> <li>• The amount of vegetation removed should be limited to the least amount possible</li> <li>• Rehabilitation of damage/impacts that arise as a result of construction must be implemented immediately upon completion of construction</li> </ul>	
	<b>Indirect impacts:</b> Alteration of water quality – increasing the amounts of nutrients (phosphate, nitrite, nitrate) through disposal or discharge of human (including partially treated and untreated) sewage during the construction phase of the development	Medium	<ul style="list-style-type: none"> <li>• Provision of adequate sanitation facilities located outside of the wetland/riparian area or its associated buffer zone</li> <li>• Establishment of buffer zones to reduce nutrient inputs in diffuse flow</li> <li>• Implementation of appropriate stormwater management around the excavation to prevent the ingress of run-off into the excavation.</li> </ul>	Medium
	Alteration of water quality – toxic contaminants (including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons and discharge of solvents, and other industrial chemicals	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</li> <li>• Ensure that maintenance work does not take place haphazardly, but, according to a fixed plan, from one area to the other.</li> <li>• Maintenance of construction vehicles</li> <li>• Control of waste discharges</li> <li>• Guidelines for implementing Clean Technologies</li> <li>• Maintenance of buffer zones to trap sediments with associated toxins</li> </ul>	Medium
	<b>Cumulative impacts:</b> Changing the amount of sediment entering water resource and associated	High	<ul style="list-style-type: none"> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> </ul>	High

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	change in turbidity (increasing or decreasing the amount) through earthwork activities, vegetation clearing, disturbance of soil and slopes through creation of roads and tracks, changes and run off characteristics and erosion		<ul style="list-style-type: none"> <li>• A temporary fence or demarcation must be erected around the works area to prevent water runoff and erosion of the disturbed or heaped soils into wetland areas.</li> <li>• Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• A vegetation rehabilitation plan should be implemented.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover.</li> <li>• Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular and pedestrian access.</li> <li>• Ideally, the rehabilitated construction footprints, especially on slopes and along riparian and wetland areas, must be fenced to prevent pedestrian access and trampling. Once rehabilitation was observed to be successful during monitoring, the fenced may be removed (at least two years).</li> <li>• During the construction phase measures must be put in place to control the flow of excess water so that it does not impact on the surface vegetation.</li> <li>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>• Runoff from roads must be managed to avoid erosion and</li> </ul>	



## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			pollution problems. <ul style="list-style-type: none"> <li>• Implementation of best management practices Source-directed controls</li> <li>• Buffer zones to trap sediments</li> </ul>	
	Changing the physical structure within a water resource (habitat) through encroachment to achieve maximum commercial returns, deposition of wind-blown sand and loss of fringing vegetation and erosion	High	<ul style="list-style-type: none"> <li>• Other than approved and authorized structure, no other development or maintenance infrastructure is allowed within the delineated wetland and riparian areas or their associated buffer zones.</li> <li>• Demarcate the wetlands and riparian areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas</li> <li>• Linear developments (e.g. roads) should span the watercourse</li> <li>• Weed control in buffer zone</li> <li>• Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed.</li> <li>• Monitor the establishment of alien invasive species within the areas affected by the construction and maintenance of the powerline and take immediate corrective action where invasive species are observed to establish.</li> </ul>	Medium
Impacts on Heritage Resources	<b>Direct impacts:</b> <b>Impacts on graves</b> - The proposed study area has a number of burial places ranging from very large formal cemeteries, to individual graves located in the vicinity of abandoned homesteads.	High	All the identified burial places are well demarcated and visible and would therefore be easily avoided. The power lines are routed to bypass the various burial places and that they are demarcated with danger tape for the duration of the power line construction.	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p><b>Home steads</b> - a number of farm labourer homesteads have been identified in the study area.</p>	Low	Although these features are located in close proximity of a section of the proposed power line, it is unsure if the power line would have an impact on these features. It is recommended that these sites are identified during the walk down and that mitigation measures are then developed for each individual site specifically.	Low
	<p><b>Indirect impacts:</b> None identified</p>	N/A	N/A	N/A
	<p><b>Cumulative impacts:</b> None identified</p>	N/A	N/A	N/A
Visual Impacts	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Removal of vegetation from construction activities</li> <li>• Construction of new access roads</li> <li>• Construction of camps and work force</li> <li>•</li> </ul> <p>All these activities will impact on the visual value and quality of the landscape character especially in the areas that are considered natural.</p>	Medium	<ul style="list-style-type: none"> <li>• Locate construction camps and stock yards in the least visible areas or locate it on areas that are already disturbed such as agricultural fields for example; The screening capacity of the site can be temporarily enhanced through the erection of a 3 m high shade cloth fence around the construction camp and substation site during construction. The colour of the shade cloth should be similar to that of the adjacent vegetation, i.e. a light brown or khaki green;</li> <li>• Keep the construction camp and construction area neat and tidy at all times. Remove any waste products from the site or contain it in an enclosed area out of sight from viewers;</li> <li>• Establish limits of disturbances during construction through the demarcating of the construction areas to prevent unnecessary damage to vegetation;</li> <li>• Keep to existing road infrastructure as far as possible to minimise the physical damage to vegetation in the power line servitude; and</li> <li>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed surfaces.</li> <li>• Minimise unsightly cut- and fill areas by stepping the substation building platform and thereby lowering the structure by as much as</li> </ul>	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>possible;</p> <ul style="list-style-type: none"> <li>• Shape the cut and fill embankments by rounding the edges and giving it a more natural appearance if space permits. Alternatively, embankments must be stabilised preferably through planting (unlikely to be an option inside the substation boundary fence due to safety consideration) to cover up any exposed soil and to restrict erosion;</li> <li>• Establish screening planting along the sides of the substations that front towards the communities. Alternatively it should be relocated to a site that has a natural screening capacity;</li> <li>• Signage should be simple and unobtrusive and not protrude above the skyline when viewed from any direction; and</li> <li>• A definite effort should be made to reduce the height and scale of the substations, if at all possible.</li> </ul>	
Geotechnical Impacts	<p><b>Direct impacts:</b> Soil disturbance during construction at the pylon sites which may destabilise the soil and lead to soil erosion</p>	High	<ul style="list-style-type: none"> <li>• Use of berms and drainage channels to direct water away from the construction areas where necessary</li> <li>• Use existing access roads wherever possible</li> <li>• Rehabilitate disturbed areas as soon as possible after construction</li> <li>• Correct engineering design of stream and water course crossings</li> <li>• Correct engineering design of any new access roads</li> </ul>	Medium -low
	<p>The possible presence of shallow rock (granite, granophyre &amp; gabbro) or hardpan calcrete (within 1,5m of surface) could result in areas of difficult excavation, NHBRC class R.</p>	Medium	<ul style="list-style-type: none"> <li>• Steep slopes (&gt;45°) and areas immediately below them should be avoided for the siting of pylons and maintenance roads wherever possible. These areas are subject to slope failure and are vulnerable to erosion.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Shallow perched water table could saturate foundation soils and have a detrimental effect on bearing capacity at the substation sites.	Medium	<ul style="list-style-type: none"> <li>Floodplains and areas in close proximity to rivers need to be avoided.</li> <li>No pylons should be placed in or close to pans, vleis and wetlands.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Dust Impacts	<b>Direct impacts:</b> Construction machinery and heavy vehicles which are likely to make use of the existing farm roads to transport equipment and material to the construction site, are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads	Low	<ul style="list-style-type: none"> <li>Continuous watering of the site should be carried out to prevent dust pollution during windy and dry conditions.</li> <li>A continuous dust monitoring process needs to be undertaken during construction.</li> <li>Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>All vehicles transporting friable materials such as sand, rubble etc must be covered by a tarpaulin or wet down.</li> <li>Construction work to be undertaken during weekdays as far as practical.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified.	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified.	N/A	N/A	N/A
Spillage of hazardous substances	<b>Direct impacts</b> Several activities can cause the spillage of hazardous substances, causing contamination of receiving environment at the construction site. These include spillages from unmanaged ablution	Medium	<i>Store fuels and chemicals in a bunded area. Provide staff with hazardous materials training.</i>	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	facilities, spillages of fuels and oils, spillage of concrete and cement and runoff of contaminated cement wastewater.			
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Fires	<b>Direct impacts</b> Fires may be caused through a number of actions or reasons, such as defective equipment, cigarette butts, and spilled fuels and oils. Fires are generally the result of bad or ineffective management, or negligence.	Medium	Fire fighting equipment to be kept on site and serviced regularly.	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impact on socio-economics	<b>Direct impacts:</b> Impact on nearby residential areas - Influx of workers in the area may raise concerns from neighbouring residents	Medium	<ul style="list-style-type: none"> <li>• All adjacent landowners must be informed of the construction processes prior to commencement of construction activities.</li> <li>• Adjacent land owners must be informed timeously of any service stoppages in their areas.</li> <li>• Notification must include possible timeframes for stoppages.</li> <li>• Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners.</li> <li>• Affected land owners must be timeously informed of any/all maintenance of the bulk water services supply which may result in service stoppages to their properties. Again this must include possible timeframes so alternatives can be provided.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			
Impacts on traffic and local roads	<p><b>Direct impacts:</b> Traffic will be congested as a result of construction activities. In addition, traffic increase can lead to road damage, erosion, accidents and even traffic delays Construction machinery and heavy vehicles are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads.</p>		<ul style="list-style-type: none"> <li>• Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00).</li> <li>• It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system.</li> <li>• Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>• Implement dust suppression measures (wetting or application of soil binding compound) in all areas that will be affected by construction</li> <li>• activities and where dust will be generated</li> </ul>	
	<p><b>Indirect impacts:</b> None identified</p>	N/A	N/A	N/A
	<p><b>Cumulative impacts:</b> None identified</p>	N/A	N/A	N/A
Impact on socio-economics:	<p><b>Direct impacts:</b> Economic and employment status will be impacted on due to access and road construction, building construction, paving construction and landscaping.</p>	Medium	<p>The construction phase will provide direct temporary employment for locals, and</p> <ul style="list-style-type: none"> <li>• Local communities should be informed upfront and in no uncertain terms that the possibility of local employment is most unlikely so that unrealistic expectations are not created</li> <li>• Where unskilled labour is required, it should be sourced from the local communities</li> <li>• Where project activities lead to the creation of informal job opportunities such as food stalls, contractors should be encouraged to allow such activities</li> </ul>	Medium
	<p><b>Indirect impacts:</b> Indirect employment through demand for construction materials, and support services, as well as empowerment and</p>	Medium	No mitigation measure required	Medium

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	skills transfer opportunities.			
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on infrastructure services	<p><b>Direct impacts:</b> The status of the infrastructure services may be impacted on through the establishment of the site and the construction of roads.</p> <p><b>Indirect impacts:</b> None identified</p> <p><b>Cumulative impacts:</b> None identified</p>		<p><b>There are no mitigation measures as the impact is positive.</b></p> <ul style="list-style-type: none"> <li>• The status of the infrastructure services in the surrounding area will be improved through the establishment of the site and the upgrade of roads in the area.</li> <li>• Insect the site for burst, blocked or leaking water pipe</li> <li>• During the operational phase, the sewage system must be inspected for leakages on regular basis and any leakages must be attended to immediately.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Increased soil erosion	<p>Loss of fertile topsoil will occur due to the initial vegetation clearing (for access roads to tower site); and construction earthworks may cause increased soil erosion as well as stormwater runoff.</p> <p>The area where the power line is proposed to be constructed may be undulating.</p>		<ul style="list-style-type: none"> <li>• The route deviations impacting mostly on disturbed areas should be considered</li> <li>• It is recommended that care should be taken when constructing a power line as this might result in soil erosion. If at all possible, construction activities should preferably take place during the dry winter months.</li> <li>• Stockpiles in excavated areas should not be higher than 2 m to avoid compaction and visual impacts.</li> <li>• To prevent erosion of materials stockpiled for a long period of time, the material must be retained in a bermed area.</li> <li>• Do not allow erosion to develop on a large scale before taking action.</li> <li>• Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas.</li> </ul>	

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed.</li> <li>• Colonisation of the disturbed areas by plants species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.</li> <li>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> </ul>	



## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
Health and safety impacts	<b>Direct impacts:</b> Impacts/injuries to animals or humans entering the site unnoticed	Medium	<ul style="list-style-type: none"> <li>The construction site and tower excavations must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area.</li> <li>No fires are allowed at or around the construction site.</li> <li>The contractor must provide gas fired stoves and heaters to the workers</li> <li>Due to the reason that the number of population in the receiving environment will increase, it is therefore important to develop and implement Health Awareness programs to reduce the wide spread of diseases such as HIV/AIDS as well as educating people on issues related to safe sex.</li> <li>Since the majority of the households in the area lack formal basic infrastructures for sanitation (flush toilets), it will also be advisable to provide mobile toilets to avoid contamination of land and surface water (e.g. rivers, springs and wetlands), as well as providing safe drinking water to reduce the consumption of contaminated water from streams/rivers or boreholes.</li> </ul>	Low
	Workforce and construction sites	Medium	<ul style="list-style-type: none"> <li>Ensure all construction vehicles and machinery is under the control of competent personnel.</li> <li>Limit access to the construction site to the workforce only.</li> <li>Safety clothes and equipment must be worn at all times.</li> <li>Comply with the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Waste Management impacts	<b>Direct impacts:</b> Improper storage and disposal of solid waste, littering and ablution facilities	Medium	<ul style="list-style-type: none"> <li>All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained.</li> <li>• Separate waste skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.</li> <li>• Littering will not be permitted on the site and general housekeeping will be enforced.</li> <li>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.</li> <li>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li> <li>• Adequate toilet facilities must be provided for all staff members as standard construction practice.</li> <li>• Chemical toilets must be placed within the construction camp and not in close proximity to the river. The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.</li> <li>• No wastes may remain on the construction site for more than two weeks</li> <li>• Keep the properties neat and litter free at all times and maintain the landscaped areas.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on ground water	<b>Direct impacts:</b> Groundwater contamination - Hydrocarbon leakages from plant	Medium	<ul style="list-style-type: none"> <li>• Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	vehicles and poor management of sources of hydrocarbon leakages has a potential to pollute underground and surrounding resources		<ul style="list-style-type: none"> <li>All cement mixing must occur on impervious surfaces and within controlled bermed areas.</li> <li>Oil residue must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site.</li> <li>Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the place of construction.</li> <li>No materials may be discharged from the construction camps.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Noise Impacts	<b>Direct impacts:</b> Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents as well as along internal access roads.	Medium	<ul style="list-style-type: none"> <li>The contractor must ensure that noise levels remain within acceptable limits</li> <li>Construction activities must be limited to normal working hours and according to municipal bylaws, i.e. working hours must be limited to weekdays as far as possible.</li> <li>If construction is required on the weekend; permission from adjacent landowners will be required prior to construction.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on stormwater	<b>Direct impacts:</b> The accumulation of stormwater.	Medium	<ul style="list-style-type: none"> <li>No stockpiles or construction materials may be stored or placed within any drainage line that may be in close proximity of storm water drains.</li> <li>No stockpiles or construction materials may be stored or placed in close proximity to storm water drains.</li> <li>The storm water system especially discharge points must be inspected and damaged areas must be repaired if required.</li> </ul>	Low
	<b>Indirect impacts:</b>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
OPERATIONAL PHASE IMPACTS				
Impacts on Flora	<b>Direct impacts:</b> <i>Positive</i> impact by removing alien invasive plants, although care must be taken not to remove all vegetation at once, especially within the rainy season (could result in soil erosion and soil loss).	Medium	<ul style="list-style-type: none"> <li>• Rehabilitate all areas cleared of invasive plants as soon as practically possible, utilising specified methods and species.</li> <li>• Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. Monitoring should continue for at least two years after construction is complete.</li> <li>• Follow manufacturer's instruction when using chemical methods, especially in terms of quantities, time of application etc.</li> <li>• Ensure that only properly trained people handle and make use of chemicals.</li> <li>• Dispose of the eradicated plant material at an approved solid waste disposal site.</li> <li>• Only indigenous plant species naturally occurring in the area should be used during the rehabilitation of the areas affected by the construction activities.</li> </ul>	Low
	Destruction of natural vegetation	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.</li> <li>• Ensure that maintenance work does not take place haphazardly, but according to a fixed plan.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock</li> </ul>	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			access. <ul style="list-style-type: none"> <li>• Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> <li>• Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.</li> <li>• Plants that are not interfering with the operation of the powerline during the maintenance must not be disturbed.</li> </ul>	
	<b>Indirect impacts:</b> Bush encroachment	Medium	<ul style="list-style-type: none"> <li>• Use grass sods that were removed prior to construction to rehabilitate the construction footprints. Sods must not be stored for lengthy periods and should not be stacked on top of each other or on top of grazed and moist grasslands. The sods should preferably be removed during the winter months and replanted by springtime latest.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.</li> <li>• Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> <li>• Remove excess <i>Acacia karoo</i>, <i>A melifera</i> and <i>Dichrostachys cinerea</i> seedlings along with any alien vegetation.</li> <li>• Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.</li> </ul>	Low
	<b>Cumulative impacts:</b>	N/A	N/A	N/A
Impacts on Wetland	<b>Direct impacts:</b>	Medium	Care must be taken all the time when applying the herbicide to remove	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Maintenance and clearing of the servitude through the use of chemicals may also pollute nearby watercourses if not properly undertaken.		aliens	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Disruption to local residents	<b>Direct impacts:</b> Power cuts during maintenance may disrupt local people	Medium	Inform residents if planned power cuts at least 15 -30 days before implementing	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Fauna	<b>Direct impacts:</b> Faunal Disturbance - During the operational phase the mammal assemblages will be minimally disturbed by the functioning of the powerline and occasionally disturbed should maintenance of the infrastructure be required. It is not expected for the composition of fauna species to alter and the distribution and abundance of the faunal species should revert to that similar of the composition before construction. This impact will be on a limited basis dependent on the need for maintenance.	Medium	<ul style="list-style-type: none"> <li>• Areas not impacted by the associated infrastructure, as well as those considered to have a high biological diversity, should be maintained in their present states;</li> <li>• Maintenance activities should be limited to daylight hours and vehicles should remain on the designated roads at all times; and</li> <li>• The road network should be maintained as gravel tracks that allow for faunal dispersal.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> Local Business growth	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Socioeconomic	<b>Direct impacts:</b>	N/A	N/A	N/A
	<b>Indirect impacts:</b> Local Business growth	Medium	No mitigation measures are recommended.	Medium
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Visual Impacts	<b>Direct impacts:</b> <b>Aesthetic quality and sense of place:</b> The operation of the new power lines and substations will cause intrusions on observers' views especially on those residents living within 1 km of the servitude. This will result from the introduction of new elements that are uncharacteristic of the study area and will alter the baseline condition to the visual environment. The industrial character of the power lines and substation will contrast severely with the rural and natural character of the landscape. These will be representative of anthropogenic alternations to a study area that is expected to impact on the value of the visual environment.	Low to High	<ul style="list-style-type: none"> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of weeds that may become an unsightly feature.</li> <li>• Maintenance of the servitude in terms of clearing up littering and dumped refuse is highly recommended. This must be done on a routine basis in order to keep the servitude neat and maintain a visually unobtrusive condition;</li> <li>• All lighting, especially perimeter security lighting at the substations must be shielded to minimise light spillage and pollution. No direct light sources must be seen from outside the site;</li> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may become an unsightly feature; and</li> <li>• Screen planting that was specifically established to minimise the intrusiveness of the power line or substation must be maintained and dead or sick plants replaced for a determinate period after construction.</li> </ul>	Low to High
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

1. PROPOSED DINALEDI DIPOMPONG AND PROPOSED GARANKUWA DIPOMPONG POWERLINE, ALTERNATIVES DINALEDI DIPOMPONG AND ALTERNATIVE GARANKUWA DIPOMPONG				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			
Soil erosion	<b>Direct impacts:</b> Storm water runoff may cause soil erosion from the tower foundations	Medium	<ul style="list-style-type: none"> <li>• Regularly inspect all storm water channels</li> <li>• Provide soil conservation measures in areas of susceptible erosion around the tower foundations</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A



## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
<b>CONSTRUCTION PHASE</b>				
Impact on Fauna	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Loss of faunal habitat / Fragmentation from the clearing of vegetation communities for construction of the associated powerline infrastructure and servitude</li> <li>• Faunal Disturbance from construction activities.i.e. noise</li> <li>• Killing and snaring of fauna species may occur from construction personnel</li> </ul>	High	<ul style="list-style-type: none"> <li>• Only areas where construction is to occur should be cleared of vegetation;</li> <li>• No natural watercourses, pans, or wetlands should be disturbed by the development with a 500m buffer zone (marked during the construction phase) allowed for between the edge of any of the above mentioned features or an appropriate buffer zone as determined by a wetland specialist;</li> <li>• The extent of the construction should be confined to disturbed areas or those identified as having a low / medium ecological sensitivity and demarcated.</li> <li>• Where areas of high ecological sensitivity need to be disturbed, the necessary permits and mitigation measures recommended by the wetland specialist should be implemented.</li> <li>• No construction vehicles or personnel should be allowed to leave the demarcated area unless authorised to do so</li> <li>• Areas identified with high ecological sensitivity should be avoided during construction activities.</li> <li>• Areas that are not part of the site development plan should be marked as no-go zones;</li> <li>• The development should promote connectivity between ecologically important habitats by retaining natural corridors for the movement of fauna;</li> <li>• Roads should be planned to encourage faunal dispersal and minimize fragmentation of ecologically sensitive areas. Roads should preferably be maintained as gravel tracks;</li> <li>• Construction activities should be limited to daylight hours; and</li> <li>• Construction vehicles transporting materials to and from the construction site must be covered to reduce the formation of dust.</li> <li>• Construction personnel should be informed of the Animal</li> </ul>	Medium

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			Protection Act no. 71 of 1962 and encouraged not to harm any wildlife; and <ul style="list-style-type: none"> <li>Construction personnel should undergo awareness training regarding fauna assemblages and the correct procedures to follow should fauna be found within the site. They should be encouraged</li> <li>not to harm any wildlife. They should also be informed of any policies and procedures applicable for fauna and the environment.</li> </ul>	
Impacts on Avifauna	<i>Direct impacts:</i> Displacement due to habitat destruction and disturbance	Low	Restrict the construction activities to the construction footprint area. Avoid the removal of large trees.	Low
	Collisions with the earth wire of the proposed 132kV line - the greatest risk of collisions power lines.	Medium	<ul style="list-style-type: none"> <li>The spans that cross drainage lines and wetland areas should be marked with Bird Flight Diverters on the earth wire of the line, five metres apart, alternating black and white</li> <li>Identified high risk sections of the power line to be installed with a suitable anti bird collision marking device approved by Eskom, and as per Eskom standards.</li> </ul>	Low
	<b>Electrocutions</b> - Raptors and vultures that may occasionally forage in the study area	Medium	The poles should be fitted with bird perches on top of the poles to draw birds, particularly vultures, away from the potentially risky insulators	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impacts on Flora	<ul style="list-style-type: none"> <li>Proposed route will Mostly impact on secondary or Degraded Bushveld and will cross riparian/wetland areas to a large extent.</li> <li>Alternative 1 will largely</li> </ul>	Medium	<b>Mitigation measures for riparian and wetland areas, as well as natural bushveld</b> <ul style="list-style-type: none"> <li>The route alignments must be fixed through areas with the least vegetation sensitivity.</li> <li>A temporary fence or demarcation must be erected around the</li> </ul>	Low

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p>impact on already transformed vegetation and will also cross 2 smaller wetland areas</p> <ul style="list-style-type: none"> <li>Alternative 2 will traverse some bushveld and secondary Bushveld and the major extent of this route is within wetland and moist grassland areas</li> </ul>		<p>construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to sensitive environs.</p> <ul style="list-style-type: none"> <li>Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.</li> <li>No open fires are permitted within naturally vegetated areas.</li> <li>Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>A vegetation rehabilitation plan should be implemented. Grass can be removed as sods and stored within transformed vegetation – remove alien invasive vegetation prior to storing grasslands sods in transformed areas. Smaller shrubs and bulbs should also be removed and used for rehabilitation. The plants must preferably be removed during the winter months and be replanted by latest springtime. The grass sods should not be stacked on top of each other. Once construction is completed, these sods should be used to rehabilitate the disturbed areas from where they have been removed. In the absence of timely rainfall, the sods should be watered well after planting and at least twice more over the next 2 weeks.</li> <li>Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>No activities should take place during rainy events and at least 2 days afterwards.</li> </ul>	
	<p>Possible destruction of plants of conservation concern and protected tree species</p> <ul style="list-style-type: none"> <li>The protected tree <i>Sclerocarya birrea subsp</i></li> </ul>		<ul style="list-style-type: none"> <li>Prior to construction, the final route alignment should preferably be walked by a specialist to identify any possible plant species of conservation concern as well as protected tree species. Note that this should be done in the growing season of plants (Oct-March).</li> <li>Although the secondary bushveld is regarded by this report as posing low constraint to the proposed powerline development, development should proceed with caution and it is advised that the</li> </ul>	

## BASIC ASSESSMENT REPORT

### 2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p><i>caffra</i> (Marula) was observed along the routes (Proposed and Alternative 1) and in proximity to the existing Nonyane substation. <i>Combretum imberbe</i> (Leadwood) was observed along this proposed route. It is unlikely that other protected plant species persist along these proposed routes.</p> <p>Impact on the C PLAN Biodiversity Assessment and ESA</p> <ul style="list-style-type: none"> <li>• Proposed route is not situated in a CBA but it does cross a small extent of ESA, associated with a drainage line in close proximity to the Tswaing Nature Reserve</li> <li>• Alternative 2 will have minimal impact on CBA</li> </ul>		<p>final route alignment be walked by an ecologist or botanist and these plants removed and conserved if found to be within the development footprint.</p> <ul style="list-style-type: none"> <li>• Protected tree species was confirmed within the secondary bushveld.</li> <li>• The protected tree species along the powerline routes and within the substation footprint should preferably not be removed and only pruned where necessary. Note that removal and pruning will require a permit from the Department of Agriculture, Forestry and Fisheries (DAFF).</li> <li>• The population of <i>Sclerocarya birrea subsp caffra</i> (Marula) and <i>Combretum imberbe</i> should be avoided along these route. If not possible, these plants should be removed and relocated to suitable habitat nearby or kept under suitable growing conditions and re-established during rehabilitation of the construction footprint (Note, these plants may only be removed with the permission of the provincial authority - permit).</li> <li>• Implement a Plant Rescue and Rehabilitation Plan: Where the plants of conservation concern are deemed to be under threat from the construction activity, the plants should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation after the construction.</li> <li>• Construction workers may not tamper or remove these plants and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>• Cordon off the sensitive vegetation that house the protected plant species and the plants of conservation concern and protect from construction activities and vehicles.</li> </ul>	
	<p><b>Indirect impacts:</b></p>	Medium	<ul style="list-style-type: none"> <li>• Alien invasive species that were identified within the study area and in specific along the final route alignment should be removed prior to construction-related soil disturbances.</li> <li>• Compile and implement an alien invasive monitoring plan to remove alien invasive plant species along the chosen route</li> </ul>	Low

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Spread of alien invasive vegetation		alignments, prior to construction. <ul style="list-style-type: none"> <li>• By removing these species, the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation.</li> <li>• All alien seedlings and saplings must be removed as they become evident for the duration of construction.</li> <li>• Manual / mechanical removal is preferred to chemical control.</li> <li>• All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction areas. This should be verified by the ECO.</li> </ul>	
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impacts on Wetland	<ul style="list-style-type: none"> <li>• Proposed route will only cross 2 wetlands</li> <li>• Alternative 1 also crosses 2 wetlands</li> <li>• Alternative 2 will cross 2 Wetland Crossings and the majority of the line crosses a large floodplain wetland which is also a CBA 2 area.</li> </ul> <p><b>Direct impacts:</b> Changing the quantity and fluctuation properties of the watercourse e.g. by damming the water during construction and sedimentation of the watercourse by placing pylons within wetland area or</p>	High	<ul style="list-style-type: none"> <li>• No activities should take place in the watercourses and associated buffer zone. Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a water use license.</li> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>• A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</li> <li>• Prevent pedestrian and vehicular access into the wetland and buffer areas as well as riparian areas.</li> <li>• Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses</li> <li>• Restrict the use of vehicles in the watercourses. If unavoidable, plan activities in wetlands areas to take place within the drier winter months and use equipment with the smallest possible</li> </ul>	High

## BASIC ASSESSMENT REPORT

### 2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	riparian area, thereby diverting or impeding flow during construction		footprint e.g. quad bikes <ul style="list-style-type: none"> <li>• Plan watercourse crossings to take place at predetermined points such as where the wetland width (and thus area to be impacted) is the smallest</li> <li>• Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• Avoid linear disturbances that run parallel to a watercourse</li> <li>• Management of on-site water use and prevent stormwater or contaminated water directly entering the watercourse</li> <li>• Management of point discharges</li> <li>• Planning of construction site must include eventual rehabilitation / restoration of indigenous vegetative cover</li> <li>• Alien plant eradication and follow-up control activities prior to construction, to prevent spread into disturbed soils, as well as follow-up control during construction</li> <li>• The amount of vegetation removed should be limited to the least amount possible</li> <li>• Rehabilitation of damage/impacts that arise as a result of construction must be implemented immediately upon completion of construction</li> </ul>	

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p><b>Indirect impacts:</b> Alteration of water quality – increasing the amounts of nutrients (phosphate, nitrite, nitrate) through disposal or discharge of human (including partially treated and untreated) sewage during the construction phase of the development</p>	Medium	<ul style="list-style-type: none"> <li>• Provision of adequate sanitation facilities located outside of the wetland/riparian area or its associated buffer zone</li> <li>• Establishment of buffer zones to reduce nutrient inputs in diffuse flow</li> <li>• Implementation of appropriate stormwater management around the excavation to prevent the ingress of run-off into the excavation.</li> </ul>	Medium
	Alteration of water quality – toxic contaminants (including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons and discharge of solvents, and other industrial chemicals	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</li> <li>• Ensure that maintenance work does not take place haphazardly, but, according to a fixed plan, from one area to the other.</li> <li>• Maintenance of construction vehicles</li> <li>• Control of waste discharges</li> <li>• Guidelines for implementing Clean Technologies</li> <li>• Maintenance of buffer zones to trap sediments with associated toxins</li> </ul>	Medium
	<p><b>Cumulative impacts:</b> Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount) through earthwork activities, vegetation clearing, disturbance of soil and slopes through creation of roads and tracks, changes and run off characteristics and erosion</p>	High	<ul style="list-style-type: none"> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>• A temporary fence or demarcation must be erected around the works area to prevent water runoff and erosion of the disturbed or heaped soils into wetland areas.</li> <li>• Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> </ul>	High

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• A vegetation rehabilitation plan should be implemented.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover.</li> <li>• Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular and pedestrian access.</li> <li>• Ideally, the rehabilitated construction footprints, especially on slopes and along riparian and wetland areas, must be fenced to prevent pedestrian access and trampling. Once rehabilitation was observed to be successful during monitoring, the fenced may be removed (at least two years).</li> <li>• During the construction phase measures must be put in place to control the flow of excess water so that it does not impact on the surface vegetation.</li> <li>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>• Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>• Implementation of best management practices Source-directed controls</li> <li>• Buffer zones to trap sediments</li> </ul>	



## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Changing the physical structure within a water resource (habitat) through encroachment to achieve maximum commercial returns, deposition of wind-blown sand and loss of fringing vegetation and erosion	High	<ul style="list-style-type: none"> <li>• Other than approved and authorized structure, no other development or maintenance infrastructure is allowed within the delineated wetland and riparian areas or their associated buffer zones.</li> <li>• Demarcate the wetlands and riparian areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas</li> <li>• Linear developments (e.g. roads) should span the watercourse</li> <li>• Weed control in buffer zone</li> <li>• Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed.</li> <li>• Monitor the establishment of alien invasive species within the areas affected by the construction and maintenance of the powerline and take immediate corrective action where invasive species are observed to establish.</li> </ul>	Medium
Impacts on Heritage Resources	<b>Direct impacts:</b> <b>Impacts on graves</b> - The proposed study area has a number of burial places ranging from very large formal cemeteries, to individual graves located in the vicinity of abandoned homesteads.	High	All the identified burial places are well demarcated and visible and would therefore be easily avoided. The power lines are routed to bypass the various burial places and that they are demarcated with danger tape for the duration of the power line construction.	Low
	<b>Homesteads</b> - a number of farm labourer homesteads have been identified in the study area.	Low	Although these features are located in close proximity of a section of the proposed power line, it is unsure if the power line would have an impact on these features. It is recommended that these sites are identified during the walk down and that mitigation measures are then developed for each individual site specifically.	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Visual Impacts	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Removal of vegetation from construction activities</li> <li>• Construction of new access roads</li> <li>• Construction of camps and work force</li> <li>• </li> </ul> <p>All these activities will impact on the visual value and quality of the landscape character especially in the areas that are considered natural.</p>	Medium	<ul style="list-style-type: none"> <li>• Locate construction camps and stock yards in the least visible areas or locate it on areas that are already disturbed such as agricultural fields for example; The screening capacity of the site can be temporarily enhanced through the erection of a 3 m high shade cloth fence around the construction camp and substation site during construction. The colour of the shade cloth should be similar to that of the adjacent vegetation, i.e. a light brown or khaki green;</li> <li>• Keep the construction camp and construction area neat and tidy at all times. Remove any waste products from the site or contain it in an enclosed area out of sight from viewers;</li> <li>• Establish limits of disturbances during construction through the demarcating of the construction areas to prevent unnecessary damage to vegetation;</li> <li>• Keep to existing road infrastructure as far as possible to minimise the physical damage to vegetation in the power line servitude; and</li> <li>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed surfaces.</li> <li>• Minimise unsightly cut- and fill areas by stepping the substation building platform and thereby lowering the structure by as much as possible;</li> <li>• Shape the cut and fill embankments by rounding the edges and giving it a more natural appearance if space permits. Alternatively, embankments must be stabilised preferably through planting (unlikely to be an option inside the substation boundary fence due to safety consideration) to cover up any exposed soil and to restrict erosion;</li> <li>• Establish screening planting along the sides of the substations that front towards the communities. Alternatively it should be relocated to a site that has a natural screening capacity;</li> </ul>	Low

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Signage should be simple and unobtrusive and not protrude above the skyline when viewed from any direction; and</li> <li>• A definite effort should be made to reduce the height and scale of the substations, if at all possible.</li> </ul>	
Geotechnical Impacts	<p><b>Direct impacts:</b> Soil disturbance during construction at the pylon sites which may destabilise the soil and lead to soil erosion</p>	High	<ul style="list-style-type: none"> <li>• Use of berms and drainage channels to direct water away from the construction areas where necessary</li> <li>• Use existing access roads wherever possible</li> <li>• Rehabilitate disturbed areas as soon as possible after construction</li> <li>• Correct engineering design of stream and water course crossings</li> <li>• Correct engineering design of any new access roads</li> </ul>	Medium -low
	The possible presence of shallow rock (granite, granophyre & gabbro) or hardpan calcrete (within 1,5m of surface) could result in areas of difficult excavation, NHBRC class R.	Medium	<ul style="list-style-type: none"> <li>• Steep slopes (&gt;45°) and areas immediately below them should be avoided for the siting of pylons and maintenance roads wherever possible. These areas are subject to slope failure and are vulnerable to erosion.</li> </ul>	Low
	Shallow perched water table could saturate foundation soils and have a detrimental effect on bearing capacity at the substation sites.	Medium	<ul style="list-style-type: none"> <li>• Floodplains and areas in close proximity to rivers need to be avoided.</li> <li>• No pylons should be placed in or close to pans, vleis and wetlands.</li> </ul>	Low
	<p><b>Indirect impacts:</b> None identified</p>	N/A	N/A	N/A
	<p><b>Cumulative impacts:</b> None identified</p>	N/A	N/A	N/A
Dust Impacts	<p><b>Direct impacts:</b></p>	Low	<ul style="list-style-type: none"> <li>• Continuous watering of the site should be carried out to prevent</li> </ul>	Low

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Construction machinery and heavy vehicles which are likely to make use of the existing farm roads to transport equipment and material to the construction site, are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads		dust pollution during windy and dry conditions. <ul style="list-style-type: none"> <li>• A continuous dust monitoring process needs to be undertaken during construction.</li> <li>• Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>• All vehicles transporting friable materials such a sand, rubble etc must be covered by a tarpaulin or wet down.</li> <li>• Construction work to be undertaken during weekdays as far as practical.</li> </ul>	
	<b>Indirect impacts:</b> None identified.	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified.	N/A	N/A	N/A
Spillage of hazardous substances	<b>Direct impacts</b> Several activities can cause the spillage of hazardous substances, causing contamination of receiving environment at the construction site. These include spillages from unmanaged ablution facilities, spillages of fuels and oils, spillage of concrete and cement and runoff of contaminated cement wastewater.	Medium	<i>Store fuels and chemicals in a bunded area. Provide staff with hazardous materials training.</i>	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Fires	<b>Direct impacts</b> Fires may be caused through a number of actions or reasons, such as defective equipment, cigarette butts, and spilled fuels and oils. Fires are generally the	Medium	Fire fighting equipment to be kept on site and serviced regularly.	Low

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	result of bad or ineffective management, or negligence.			
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impact on socio-economics	<b>Direct impacts:</b> Impact on nearby residential areas - Influx of workers in the area may raise concerns from neighbouring residents	Medium	<ul style="list-style-type: none"> <li>• All adjacent landowners must be informed of the construction processes prior to commencement of construction activities.</li> <li>• Adjacent land owners must be informed timeously of any service stoppages in their areas.</li> <li>• Notification must include possible timeframes for stoppages.</li> <li>• Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners.</li> <li>• Affected land owners must be timeously informed of any/all maintenance of the bulk water services supply which may result in service stoppages to their properties. Again this must include possible timeframes so alternatives can be provided.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on traffic and local roads	<b>Direct impacts:</b> Traffic will be congested as a result of construction activities. In addition, traffic increase can lead to road damage, erosion, accidents and even traffic delays Construction machinery and heavy vehicles are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads.		<ul style="list-style-type: none"> <li>• Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00).</li> <li>• It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system.</li> <li>• Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>• Implement dust suppression measures (wetting or application of soil binding compound) in all areas that will be affected by construction</li> </ul>	

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>activities and where dust will be generated</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on socio-economics:	<b>Direct impacts:</b> Economic and employment status will be impacted on due to access and road construction, building construction, paving construction and landscaping.	Medium	The construction phase will provide direct temporary employment for locals, and <ul style="list-style-type: none"> <li>Local communities should be informed upfront and in no uncertain terms that the possibility of local employment is most unlikely so that unrealistic expectations are not created</li> <li>Where unskilled labour is required, it should be sourced from the local communities</li> <li>Where project activities lead to the creation of informal job opportunities such as food stalls, contractors should be encouraged to allow such activities</li> </ul>	Medium
	<b>Indirect impacts:</b> Indirect employment through demand for construction materials, and support services, as well as empowerment and skills transfer opportunities.	Medium	No mitigation measure required	Medium
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on infrastructure services	<b>Direct impacts:</b> The status of the infrastructure services may be impacted on through the establishment of the site and the construction of roads.		<b>There are no mitigation measures as the impact is positive.</b> <ul style="list-style-type: none"> <li>The status of the infrastructure services in the surrounding area will be improved through the establishment of the site and the upgrade of roads in the area.</li> <li>Insect the site for burst, blocked or leaking water pipe</li> <li>During the operational phase, the sewage system must be inspected for leakages on regular basis and any leakages must be attended to immediately.</li> </ul>	

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Increased soil erosion	<p>Loss of fertile topsoil will occur due to the initial vegetation clearing (for access roads to tower site); and construction earthworks may cause increased soil erosion as well as stormwater runoff.</p> <p>The area where the power line is proposed to be constructed may be undulating.</p>		<ul style="list-style-type: none"> <li>• The route deviations impacting mostly on disturbed areas should be considered</li> <li>• It is recommended that care should be taken when constructing a power line as this might result in soil erosion. If at all possible, construction activities should preferably take place during the dry winter months.</li> <li>• Stockpiles in excavated areas should not be higher than 2 m to avoid compaction and visual impacts.</li> <li>• To prevent erosion of materials stockpiled for a long period of time, the material must be retained in a bermed area.</li> <li>• Do not allow erosion to develop on a large scale before taking action.</li> <li>• Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas.</li> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed.</li> <li>• Colonisation of the disturbed areas by plants species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.</li> </ul>	

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES					
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:	
			<ul style="list-style-type: none"> <li>Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> </ul>		
Health and safety impacts	<b>Direct impacts:</b> Impacts/injuries to animals or humans entering the site unnoticed	Medium	<ul style="list-style-type: none"> <li>The construction site and tower excavations must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area.</li> <li>No fires are allowed at or around the construction site.</li> <li>The contractor must provide gas fired stoves and heaters to the workers</li> <li>Due to the reason that the number of population in the receiving environment will increase, it is therefore important to develop and implement Health Awareness programs to reduce the wide spread of diseases such as HIV/AIDS as well as educating people on issues related to safe sex.</li> <li>Since the majority of the households in the area lack formal basic infrastructures for sanitation (flush toilets), it will also be advisable to provide mobile toilets to avoid contamination of land and surface water (e.g. rivers, springs and wetlands), as well as providing safe drinking water to reduce the consumption of contaminated water from streams/rivers or boreholes.</li> </ul>	Low	
	Workforce and construction sites	Medium	<ul style="list-style-type: none"> <li>Ensure all construction vehicles and machinery is under the control of competent personnel.</li> <li>Limit access to the construction site to the workforce only.</li> <li>Safety clothes and equipment must be worn at all times.</li> <li>Comply with the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).</li> </ul>	Low	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A	N/A
Waste Management	<b>Direct impacts:</b>	Medium	<ul style="list-style-type: none"> <li>All solid waste generated during the construction process must be</li> </ul>	Low	



## BASIC ASSESSMENT REPORT

### 2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
impacts	Improper storage and disposal of solid waste, littering and ablution facilities		<p>placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.</p> <ul style="list-style-type: none"> <li>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained.</li> <li>• Separate waste skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.</li> <li>• Littering will not be permitted on the site and general housekeeping will be enforced.</li> <li>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.</li> <li>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li> <li>• Adequate toilet facilities must be provided for all staff members as standard construction practice.</li> <li>• Chemical toilets must be placed within the construction camp and not in close proximity to the river. The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.</li> <li>• No wastes may remain on the construction site for more than two weeks</li> <li>• Keep the properties neat and litter free at all times and maintain the landscaped areas.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

### 2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			
Impacts on ground water	<b>Direct impacts:</b> Groundwater contamination - Hydrocarbon leakages from plant vehicles and poor management of sources of hydrocarbon leakages has a potential to pollute underground and surrounding resources	Medium	<ul style="list-style-type: none"> <li>• Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants.</li> <li>• All cement mixing must occur on impervious surfaces and within controlled bermed areas.</li> <li>• Oil residue must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site.</li> <li>• Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the place of construction.</li> <li>• No materials may be discharged from the construction camps.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Noise Impacts	<b>Direct impacts:</b> Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents as well as along internal access roads.	Medium	<ul style="list-style-type: none"> <li>• The contractor must ensure that noise levels remain within acceptable limits</li> <li>• Construction activities must be limited to normal working hours and according to municipal bylaws, i.e. working hours must be limited to weekdays as far as possible.</li> <li>• If construction is required on the weekend; permission from adjacent landowners will be required prior to construction.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on stormwater	<b>Direct impacts:</b> The accumulation of stormwater.	Medium	<ul style="list-style-type: none"> <li>• No stockpiles or construction materials may be stored or placed within any drainage line that may be in close proximity of storm water drains.</li> <li>• No stockpiles or construction materials may be stored or placed in close proximity to storm water drains.</li> <li>• The storm water system especially discharge points must be</li> </ul>	Low

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			inspected and damaged areas must be repaired if required.	
	<p><b>Indirect impacts:</b> None identified</p>	N/A	N/A	N/A
	<p><b>Cumulative impacts:</b> None identified</p>	N/A	N/A	N/A
<b>OPERATIONAL PHASE IMPACTS</b>				
Impacts on Flora	<p><b>Direct impacts:</b> Positive impact by removing alien invasive plants, although care must be taken not to remove all vegetation at once, especially within the rainy season (could result in soil erosion and soil loss).</p>	Medium	<ul style="list-style-type: none"> <li>• Rehabilitate all areas cleared of invasive plants as soon as practically possible, utilising specified methods and species.</li> <li>• Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. Monitoring should continue for at least two years after construction is complete.</li> <li>• Follow manufacturer's instruction when using chemical methods, especially in terms of quantities, time of application etc.</li> <li>• Ensure that only properly trained people handle and make use of chemicals.</li> <li>• Dispose of the eradicated plant material at an approved solid waste disposal site.</li> <li>• Only indigenous plant species naturally occurring in the area should be used during the rehabilitation of the areas affected by the construction activities.</li> </ul>	Low
	Destruction of natural vegetation	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.</li> <li>• Ensure that maintenance work does not take place haphazardly, but according to a fixed plan.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using</li> </ul>	Low

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.</p> <ul style="list-style-type: none"> <li>• Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> <li>• Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.</li> <li>• Plants that are not interfering with the operation of the powerline during the maintenance must not be disturbed.</li> </ul>	
	<p><b>Indirect impacts:</b> Bush encroachment</p>	Medium	<ul style="list-style-type: none"> <li>• Use grass sods that were removed prior to construction to rehabilitate the construction footprints. Sods must not be stored for lengthy periods and should not be stacked on top of each other or on top of grazed and moist grasslands. The sods should preferably be removed during the winter months and replanted by springtime latest.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.</li> <li>• Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> <li>• Remove excess <i>Acacia karoo</i>, <i>A melifera</i> and <i>Dichrostachys cinerea</i> seedlings along with any alien vegetation.</li> <li>• Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.</li> </ul>	Low
	<p><b>Cumulative impacts:</b></p>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

<b>2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES</b>				
<b>Activity</b>	<b>Impact summary</b>	<b>Significance rating of impacts: (without mitigation)</b>	<b>Proposed mitigation</b>	<b>Significance rating of impacts after mitigation:</b>
Impacts on Wetland	<b>Direct impacts:</b> Maintenance and clearing of the servitude through the use of chemicals may also pollute nearby watercourses if not properly undertaken.	Medium	Care must be taken all the time when applying the herbicide to remove aliens	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Disruption to local residents	<b>Direct impacts:</b> Power cuts during maintenance may disrupt local people	Medium	Inform residents if planned power cuts at least 15 -30 days before implementing	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Fauna	<b>Direct impacts:</b> Faunal Disturbance - During the operational phase the mammal assemblages will be minimally disturbed by the functioning of the powerline and occasionally disturbed should maintenance of the infrastructure be required. It is not expected for the composition of fauna species to alter and the distribution and abundance of the faunal species should revert to that similar of the composition before construction. This impact will be on a limited basis dependent on the need for maintenance.	Medium	<ul style="list-style-type: none"> <li>• Areas not impacted by the associated infrastructure, as well as those considered to have a high biological diversity, should be maintained in their present states;</li> <li>• Maintenance activities should be limited to daylight hours and vehicles should remain on the designated roads at all times; and</li> <li>• The road network should be maintained as gravel tracks that allow for faunal dispersal.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> Local Business growth	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Socioeconomic	<b>Direct impacts:</b>	N/A	N/A	N/A
	<b>Indirect impacts:</b> Local Business growth	Medium	No mitigation measures are recommended.	Medium
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Visual Impacts	<b>Direct Impacts:</b> <b>Aesthetic quality and sense of place:</b> The operation of the new power lines and substations will cause intrusions on observers' views especially on those residents living within 1 km of the servitude. This will result from the introduction of new elements that are uncharacteristic of the study area and will alter the baseline condition to the visual environment. The industrial character of the power lines and substation will contrast severely with the rural and natural character of the landscape. These will be representative of anthropogenic alternations to a study area that is expected to impact on the value of the visual environment.	Low to High	<ul style="list-style-type: none"> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of weeds that may become an unsightly feature.</li> <li>• Maintenance of the servitude in terms of clearing up littering and dumped refuse is highly recommended. This must be done on a routine basis in order to keep the servitude neat and maintain a visually unobtrusive condition;</li> <li>• All lighting, especially perimeter security lighting at the substations must be shielded to minimise light spillage and pollution. No direct light sources must be seen from outside the site;</li> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may become an unsightly feature; and</li> <li>• Screen planting that was specifically established to minimise the intrusiveness of the power line or substation must be maintained and dead or sick plants replaced for a determinate period after construction.</li> </ul>	Low to High
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

### 2. PROPOSED DIPOMPONG TSWAING POWERLINE AND ALTERNATIVE 1 DIPOMPONG TSWAING POWERLINES

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
Soil erosion	<b>Direct impacts:</b> Storm water runoff may cause soil erosion from the tower foundations	Medium	<ul style="list-style-type: none"> <li>• Regularly inspect all storm water channels</li> <li>• Provide soil conservation measures in areas of susceptible erosion around the tower foundations</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
<b>CONSTRUCTION PHASE</b>				
Impact on Fauna	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Loss of faunal habitat / Fragmentation from the clearing of vegetation communities for construction of the associated powerline infrastructure and servitude</li> <li>• Faunal Disturbance from construction activities.i.e. noise</li> <li>• Killing and snaring of fauna species may occur from construction personnel</li> </ul>	High	<ul style="list-style-type: none"> <li>• Only areas where construction is to occur should be cleared of vegetation;</li> <li>• No natural watercourses, pans, or wetlands should be disturbed by the development with a 500m buffer zone (marked during the construction phase) allowed for between the edge of any of the above mentioned features or an appropriate buffer zone as determined by a wetland specialist;</li> <li>• The extent of the construction should be confined to disturbed areas or those identified as having a low / medium ecological sensitivity and demarcated.</li> <li>• Where areas of high ecological sensitivity need to be disturbed, the necessary permits and mitigation measures recommended by the wetland specialist should be implemented.</li> <li>• No construction vehicles or personnel should be allowed to leave the demarcated area unless authorised to do so</li> <li>• Areas identified with high ecological sensitivity should be avoided during construction activities.</li> <li>• Areas that are not part of the site development plan should be marked as no-go zones;</li> <li>• The development should promote connectivity between ecologically important habitats by retaining natural corridors for the movement of fauna;</li> <li>• Roads should be planned to encourage faunal dispersal and minimize fragmentation of ecologically sensitive areas. Roads should preferably be maintained as gravel tracks;</li> <li>• Construction activities should be limited to daylight hours; and</li> <li>• Construction vehicles transporting materials to and from the construction site must be covered to reduce the formation of dust.</li> <li>• Construction personnel should be informed of the Animal Protection Act no. 71 of 1962 and encouraged not to harm any</li> </ul>	Medium



## BASIC ASSESSMENT REPORT

<b>3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE</b>				
<b>Activity</b>	<b>Impact summary</b>	<b>Significance rating of impacts: (without mitigation)</b>	<b>Proposed mitigation</b>	<b>Significance rating of impacts after mitigation:</b>
			wildlife; and <ul style="list-style-type: none"> <li>Construction personnel should undergo awareness training regarding fauna assemblages and the correct procedures to follow should fauna be found within the site. They should be encouraged</li> <li>not to harm any wildlife. They should also be informed of any policies and procedures applicable for fauna and the environment.</li> </ul>	
Impacts on Avifauna	<i>Direct impacts:</i> Displacement due to habitat destruction and disturbance	Low	Restrict the construction activities to the construction footprint area. Avoid the removal of large trees.	Low
	Collisions with the earth wire of the proposed 132kV line - the greatest risk of collisions power lines.	Medium	<ul style="list-style-type: none"> <li>The spans that cross drainage lines and wetland areas should be marked with Bird Flight Diverters on the earth wire of the line, five metres apart, alternating black and white</li> <li>Identified high risk sections of the power line to be installed with a suitable anti bird collision marking device approved by Eskom, and as per Eskom standards.</li> </ul>	Low
	<b>Electrocutions</b> - Raptors and vultures that may occasionally forage in the study area	Medium	The poles should be fitted with bird perches on top of the poles to draw birds, particularly vultures, away from the potentially risky insulators	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impacts on Flora	<ul style="list-style-type: none"> <li>Alternative 2 will traverse some bushveld and secondary Bushveld and the major extent of this route is within wetland and moist grassland areas</li> </ul>	Medium	<b>Mitigation measures for riparian and wetland areas, as well as natural bushveld</b> <ul style="list-style-type: none"> <li>The route alignments must be fixed through areas with the least vegetation sensitivity.</li> <li>A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas</li> </ul>	Low

## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>where material is stored and the actual footprint of the development) to prevent access to sensitive environs.</p> <ul style="list-style-type: none"> <li>• Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.</li> <li>• No open fires are permitted within naturally vegetated areas.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• A vegetation rehabilitation plan should be implemented. Grass can be removed as sods and stored within transformed vegetation – remove alien invasive vegetation prior to storing grasslands sods in transformed areas. Smaller shrubs and bulbs should also be removed and used for rehabilitation. The plants must preferably be removed during the winter months and be replanted by latest springtime. The grass sods should not be stacked on top of each other. Once construction is completed, these sods should be used to rehabilitate the disturbed areas from where they have been removed. In the absence of timely rainfall, the sods should be watered well after planting and at least twice more over the next 2 weeks.</li> <li>• Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>• No activities should take place during rainy events and at least 2 days afterwards.</li> </ul>	
	<p>Possible destruction of plants of conservation concern and protected tree species</p> <ul style="list-style-type: none"> <li>• The protected tree <i>Boscia albitrunca</i> and <i>Sclerocarya birrea subsp. caffra</i> could occur</li> </ul>		<ul style="list-style-type: none"> <li>• Prior to construction, the final route alignment should preferably be walked by a specialist to identify any possible plant species of conservation concern as well as protected tree species. Note that this should be done in the growing season of plants (Oct-March).</li> <li>• Although the secondary bushveld is regarded by this report as posing low constraint to the proposed powerline development, development should proceed with caution and it is advised that the final route alignment be walked by an ecologist or botanist and</li> </ul>	

## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p>along this route.</p> <ul style="list-style-type: none"> <li>The data deficient plant <i>Commelina bella</i> could also be present</li> </ul> <p>Impact on the C PLAN Biodiversity Assessment and ESA</p> <ul style="list-style-type: none"> <li>The entire route is situated within a CBA and runs parallel to the northern boundary of the Tswaing Nature Reserve</li> </ul>		<p>these plants removed and conserved if found to be within the development footprint.</p> <ul style="list-style-type: none"> <li>Protected tree species was confirmed within the secondary bushveld.</li> <li>The protected tree species along the powerline routes and within the substation footprint should preferably not be removed and only pruned where necessary. Note that removal and pruning will require a permit from the Department of Agriculture, Forestry and Fisheries (DAFF).</li> <li>The population of <i>Boscia albitrunca</i> and <i>Sclerocarya birrea subspcaffra</i> and <i>Commelina bella</i> should be avoided along this route. If not possible, these plants should be removed and relocated to suitable habitat nearby or kept under suitable growing conditions and re-established during rehabilitation of the construction footprint (Note, these plants may only be removed with the permission of the provincial authority - permit).</li> <li>Implement a Plant Rescue and Rehabilitation Plan: Where the plants of conservation concern are deemed to be under threat from the construction activity, the plants should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation after the construction.</li> <li>Construction workers may not tamper or remove these plants and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>Cordon off the sensitive vegetation that house the protected plant species and the plants of conservation concern and protect from construction activities and vehicles.</li> </ul>	
	<p><b>Indirect impacts:</b> Spread of alien invasive vegetation</p>	Medium	<ul style="list-style-type: none"> <li>Alien invasive species that were identified within the study area and in specific along the final route alignment should be removed prior to construction-related soil disturbances.</li> <li>Compile and implement an alien invasive monitoring plan to remove alien invasive plant species along the chosen route alignments, prior to construction.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• By removing these species, the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation.</li> <li>• All alien seedlings and saplings must be removed as they become evident for the duration of construction.</li> <li>• Manual / mechanical removal is preferred to chemical control.</li> <li>• All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction areas. This should be verified by the ECO.</li> </ul>	
	<p><b>Cumulative impacts</b> None identified</p>	N/A	N/A	N/A
Impacts on Wetland	<ul style="list-style-type: none"> <li>• Alternative 2 will cross 2 Wetland Crossings and the majority of the line crosses a large floodplain wetland which is also a CBA 2 area.</li> </ul> <p><b>Direct impacts:</b> Changing the quantity and fluctuation properties of the watercourse e.g. by damming the water during construction and sedimentation of the watercourse by placing pylons within wetland area or riparian area, thereby diverting or impeding flow during construction</p>	High	<ul style="list-style-type: none"> <li>• No activities should take place in the watercourses and associated buffer zone. Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a water use license.</li> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>• A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</li> <li>• Prevent pedestrian and vehicular access into the wetland and buffer areas as well as riparian areas.</li> <li>• Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses</li> <li>• Restrict the use of vehicles in the watercourses. If unavoidable, plan activities in wetlands areas to take place within the drier winter months and use equipment with the smallest possible footprint e.g. quad bikes</li> </ul>	High

## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Plan watercourse crossings to take place at predetermined points such as where the wetland width (and thus area to be impacted) is the smallest</li> <li>• Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• Avoid linear disturbances that run parallel to a watercourse</li> <li>• Management of on-site water use and prevent stormwater or contaminated water directly entering the watercourse</li> <li>• Management of point discharges</li> <li>• Planning of construction site must include eventual rehabilitation / restoration of indigenous vegetative cover</li> <li>• Alien plant eradication and follow-up control activities prior to construction, to prevent spread into disturbed soils, as well as follow-up control during construction</li> <li>• The amount of vegetation removed should be limited to the least amount possible</li> <li>• Rehabilitation of damage/impacts that arise as a result of construction must be implemented immediately upon completion of construction</li> </ul>	

## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p><b>Indirect impacts:</b> Alteration of water quality – increasing the amounts of nutrients (phosphate, nitrite, nitrate) through disposal or discharge of human (including partially treated and untreated) sewage during the construction phase of the development</p>	Medium	<ul style="list-style-type: none"> <li>• Provision of adequate sanitation facilities located outside of the wetland/riparian area or its associated buffer zone</li> <li>• Establishment of buffer zones to reduce nutrient inputs in diffuse flow</li> <li>• Implementation of appropriate stormwater management around the excavation to prevent the ingress of run-off into the excavation.</li> </ul>	Medium
	Alteration of water quality – toxic contaminants (including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons and discharge of solvents, and other industrial chemicals	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</li> <li>• Ensure that maintenance work does not take place haphazardly, but, according to a fixed plan, from one area to the other.</li> <li>• Maintenance of construction vehicles</li> <li>• Control of waste discharges</li> <li>• Guidelines for implementing Clean Technologies</li> <li>• Maintenance of buffer zones to trap sediments with associated toxins</li> </ul>	Medium
	<p><b>Cumulative impacts:</b> Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount) through earthwork activities, vegetation clearing, disturbance of soil and slopes through creation of roads and tracks, changes and run off characteristics and erosion</p>	High	<ul style="list-style-type: none"> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>• A temporary fence or demarcation must be erected around the works area to prevent water runoff and erosion of the disturbed or heaped soils into wetland areas.</li> <li>• Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> </ul>	High

## BASIC ASSESSMENT REPORT

3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• A vegetation rehabilitation plan should be implemented.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover.</li> <li>• Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular and pedestrian access.</li> <li>• Ideally, the rehabilitated construction footprints, especially on slopes and along riparian and wetland areas, must be fenced to prevent pedestrian access and trampling. Once rehabilitation was observed to be successful during monitoring, the fenced may be removed (at least two years).</li> <li>• During the construction phase measures must be put in place to control the flow of excess water so that it does not impact on the surface vegetation.</li> <li>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>• Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>• Implementation of best management practices Source-directed controls</li> <li>• Buffer zones to trap sediments</li> </ul>	

## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Changing the physical structure within a water resource (habitat) through encroachment to achieve maximum commercial returns, deposition of wind-blown sand and loss of fringing vegetation and erosion	High	<ul style="list-style-type: none"> <li>• Other than approved and authorized structure, no other development or maintenance infrastructure is allowed within the delineated wetland and riparian areas or their associated buffer zones.</li> <li>• Demarcate the wetlands and riparian areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas</li> <li>• Linear developments (e.g. roads) should span the watercourse</li> <li>• Weed control in buffer zone</li> <li>• Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed.</li> <li>• Monitor the establishment of alien invasive species within the areas affected by the construction and maintenance of the powerline and take immediate corrective action where invasive species are observed to establish.</li> </ul>	Medium
Impacts on Heritage Resources	<b>Direct impacts:</b> <b>Impacts on graves</b> - The proposed study area has a number of burial places ranging from very large formal cemeteries, to individual graves located in the vicinity of abandoned homesteads.	High	All the identified burial places are well demarcated and visible and would therefore be easily avoided. The power lines are routed to bypass the various burial places and that they are demarcated with danger tape for the duration of the power line construction.	Low
	<b>Homesteads</b> - a number of farm labourer homesteads have been identified in the study area.	Low	Although these features are located in close proximity of a section of the proposed power line, it is unsure if the power line would have an impact on these features. It is recommended that these sites are identified during the walk down and that mitigation measures are then developed for each individual site specifically.	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A



## BASIC ASSESSMENT REPORT

3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Visual Impacts	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Removal of vegetation from construction activities</li> <li>• Construction of new access roads</li> <li>• Construction of camps and work force</li> <li>•</li> </ul> <p>All these activities will impact on the visual value and quality of the landscape character especially in the areas that are considered natural.</p>	Medium	<ul style="list-style-type: none"> <li>• Locate construction camps and stock yards in the least visible areas or locate it on areas that are already disturbed such as agricultural fields for example; The screening capacity of the site can be temporarily enhanced through the erection of a 3 m high shade cloth fence around the construction camp and substation site during construction. The colour of the shade cloth should be similar to that of the adjacent vegetation, i.e. a light brown or khaki green;</li> <li>• Keep the construction camp and construction area neat and tidy at all times. Remove any waste products from the site or contain it in an enclosed area out of sight from viewers;</li> <li>• Establish limits of disturbances during construction through the demarcating of the construction areas to prevent unnecessary damage to vegetation;</li> <li>• Keep to existing road infrastructure as far as possible to minimise the physical damage to vegetation in the power line servitude; and</li> <li>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed surfaces.</li> <li>• Minimise unsightly cut- and fill areas by stepping the substation building platform and thereby lowering the structure by as much as possible;</li> <li>• Shape the cut and fill embankments by rounding the edges and giving it a more natural appearance if space permits. Alternatively, embankments must be stabilised preferably through planting (unlikely to be an option inside the substation boundary fence due to safety consideration) to cover up any exposed soil and to restrict erosion;</li> <li>• Establish screening planting along the sides of the substations that front towards the communities. Alternatively it should be relocated to a site that has a natural screening capacity;</li> </ul>	Low

## BASIC ASSESSMENT REPORT

<b>3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE</b>				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Signage should be simple and unobtrusive and not protrude above the skyline when</li> <li>• viewed from any direction; and</li> <li>• A definite effort should be made to reduce the height and scale of the substations, if at all possible.</li> </ul>	
Geotechnical Impacts	<p><b>Direct impacts:</b> Soil disturbance during construction at the pylon sites which may destabilise the soil and lead to soil erosion</p>	High	<ul style="list-style-type: none"> <li>• Use of berms and drainage channels to direct water away from the construction areas where necessary</li> <li>• Use existing access roads wherever possible</li> <li>• Rehabilitate disturbed areas as soon as possible after construction</li> <li>• Correct engineering design of stream and water course crossings</li> <li>• Correct engineering design of any new access roads</li> </ul>	Medium -low
	<p>The possible presence of shallow rock (granite, granophyre &amp; gabbro) or hardpan calcrete (within 1,5m of surface) could result in areas of difficult excavation, NHBRC class R.</p>	Medium	<ul style="list-style-type: none"> <li>• Steep slopes (&gt;45°) and areas immediately below them should be avoided for the siting of pylons and maintenance roads wherever possible. These areas are subject to slope failure and are vulnerable to erosion.</li> </ul>	Low
	<p>Shallow perched water table could saturate foundation soils and have a detrimental effect on bearing capacity at the substation sites.</p>	Medium	<ul style="list-style-type: none"> <li>• Floodplains and areas in close proximity to rivers need to be avoided.</li> <li>• No pylons should be placed in or close to pans, vleis and wetlands.</li> </ul>	Low
	<p><b>Indirect impacts:</b> None identified</p>	N/A	N/A	N/A
	<p><b>Cumulative impacts:</b> None identified</p>	N/A	N/A	N/A
Dust Impacts	<p><b>Direct impacts:</b></p>	Low	<ul style="list-style-type: none"> <li>• Continuous watering of the site should be carried out to prevent</li> </ul>	Low

## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Construction machinery and heavy vehicles which are likely to make use of the existing farm roads to transport equipment and material to the construction site, are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads		dust pollution during windy and dry conditions. <ul style="list-style-type: none"> <li>• A continuous dust monitoring process needs to be undertaken during construction.</li> <li>• Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>• All vehicles transporting friable materials such a sand, rubble etc must be covered by a tarpaulin or wet down.</li> <li>• Construction work to be undertaken during weekdays as far as practical.</li> </ul>	
	<b>Indirect impacts:</b> None identified.	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified.	N/A	N/A	N/A
Spillage of hazardous substances	<b>Direct impacts</b> Several activities can cause the spillage of hazardous substances, causing contamination of receiving environment at the construction site. These include spillages from unmanaged ablution facilities, spillages of fuels and oils, spillage of concrete and cement and runoff of contaminated cement wastewater.	Medium	<i>Store fuels and chemicals in a bunded area. Provide staff with hazardous materials training.</i>	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Fires	<b>Direct impacts</b> Fires may be caused through a number of actions or reasons, such as defective equipment, cigarette butts, and spilled fuels and oils. Fires are generally the	Medium	Fire fighting equipment to be kept on site and serviced regularly.	Low

## BASIC ASSESSMENT REPORT

<b>3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE</b>				
<b>Activity</b>	<b>Impact summary</b>	<b>Significance rating of impacts: (without mitigation)</b>	<b>Proposed mitigation</b>	<b>Significance rating of impacts after mitigation:</b>
	result of bad or ineffective management, or negligence.			
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impact on socio-economics	<b>Direct impacts:</b> Impact on nearby residential areas - Influx of workers in the area may raise concerns from neighbouring residents	Medium	<ul style="list-style-type: none"> <li>• All adjacent landowners must be informed of the construction processes prior to commencement of construction activities.</li> <li>• Adjacent land owners must be informed timeously of any service stoppages in their areas.</li> <li>• Notification must include possible timeframes for stoppages.</li> <li>• Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners.</li> <li>• Affected land owners must be timeously informed of any/all maintenance of the bulk water services supply which may result in service stoppages to their properties. Again this must include possible timeframes so alternatives can be provided.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on traffic and local roads	<b>Direct impacts:</b> Traffic will be congested as a result of construction activities. In addition, traffic increase can lead to road damage, erosion, accidents and even traffic delays Construction machinery and heavy vehicles are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads.		<ul style="list-style-type: none"> <li>• Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00).</li> <li>• It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system.</li> <li>• Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>• Implement dust suppression measures (wetting or application of soil binding compound) in all areas that will be affected by construction</li> </ul>	

## BASIC ASSESSMENT REPORT

3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>activities and where dust will be generated</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on socio-economics:	<b>Direct impacts:</b> Economic and employment status will be impacted on due to access and road construction, building construction, paving construction and landscaping.	Medium	The construction phase will provide direct temporary employment for locals, and <ul style="list-style-type: none"> <li>Local communities should be informed upfront and in no uncertain terms that the possibility of local employment is most unlikely so that unrealistic expectations are not created</li> <li>Where unskilled labour is required, it should be sourced from the local communities</li> <li>Where project activities lead to the creation of informal job opportunities such as food stalls, contractors should be encouraged to allow such activities</li> </ul>	Medium
	<b>Indirect impacts:</b> Indirect employment through demand for construction materials, and support services, as well as empowerment and skills transfer opportunities.	Medium	No mitigation measure required	Medium
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on infrastructure services	<b>Direct impacts:</b> The status of the infrastructure services may be impacted on through the establishment of the site and the construction of roads.		<b>There are no mitigation measures as the impact is positive.</b> <ul style="list-style-type: none"> <li>The status of the infrastructure services in the surrounding area will be improved through the establishment of the site and the upgrade of roads in the area.</li> <li>Insect the site for burst, blocked or leaking water pipe</li> <li>During the operational phase, the sewage system must be inspected for leakages on regular basis and any leakages must be attended to immediately.</li> </ul>	

## BASIC ASSESSMENT REPORT

3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Increased soil erosion	<p>Loss of fertile topsoil will occur due to the initial vegetation clearing (for access roads to tower site); and construction earthworks may cause increased soil erosion as well as stormwater runoff.</p> <p>The area where the power line is proposed to be constructed may be undulating.</p>		<ul style="list-style-type: none"> <li>• The route deviations impacting mostly on disturbed areas should be considered</li> <li>• It is recommended that care should be taken when constructing a power line as this might result in soil erosion. If at all possible, construction activities should preferably take place during the dry winter months.</li> <li>• Stockpiles in excavated areas should not be higher than 2 m to avoid compaction and visual impacts.</li> <li>• To prevent erosion of materials stockpiled for a long period of time, the material must be retained in a bermed area.</li> <li>• Do not allow erosion to develop on a large scale before taking action.</li> <li>• Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas.</li> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed.</li> <li>• Colonisation of the disturbed areas by plants species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.</li> </ul>	

## BASIC ASSESSMENT REPORT

3. ALTERNATIVE 2 DIPOMONG TSWAING POWERLINE – BLUE ROUTE				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> </ul>	
Health and safety impacts	<b>Direct impacts:</b> Impacts/injuries to animals or humans entering the site unnoticed	Medium	<ul style="list-style-type: none"> <li>The construction site and tower excavations must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area.</li> <li>No fires are allowed at or around the construction site.</li> <li>The contractor must provide gas fired stoves and heaters to the workers</li> <li>Due to the reason that the number of population in the receiving environment will increase, it is therefore important to develop and implement Health Awareness programs to reduce the wide spread of diseases such as HIV/AIDS as well as educating people on issues related to safe sex.</li> <li>Since the majority of the households in the area lack formal basic infrastructures for sanitation (flush toilets), it will also be advisable to provide mobile toilets to avoid contamination of land and surface water (e.g. rivers, springs and wetlands), as well as providing safe drinking water to reduce the consumption of contaminated water from streams/rivers or boreholes.</li> </ul>	Low
	Workforce and construction sites	Medium	<ul style="list-style-type: none"> <li>Ensure all construction vehicles and machinery is under the control of competent personnel.</li> <li>Limit access to the construction site to the workforce only.</li> <li>Safety clothes and equipment must be worn at all times.</li> <li>Comply with the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Waste Management	<b>Direct impacts:</b>	Medium	<ul style="list-style-type: none"> <li>All solid waste generated during the construction process must be</li> </ul>	Low

## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
impacts	Improper storage and disposal of solid waste, littering and ablution facilities		<p>placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.</p> <ul style="list-style-type: none"> <li>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained.</li> <li>• Separate waste skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.</li> <li>• Littering will not be permitted on the site and general housekeeping will be enforced.</li> <li>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.</li> <li>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li> <li>• Adequate toilet facilities must be provided for all staff members as standard construction practice.</li> <li>• Chemical toilets must be placed within the construction camp and not in close proximity to the river. The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.</li> <li>• No wastes may remain on the construction site for more than two weeks</li> <li>• Keep the properties neat and litter free at all times and maintain the landscaped areas.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b>	N/A	N/A	N/A



## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			
Impacts on ground water	<b>Direct impacts:</b> Groundwater contamination - Hydrocarbon leakages from plant vehicles and poor management of sources of hydrocarbon leakages has a potential to pollute underground and surrounding resources	Medium	<ul style="list-style-type: none"> <li>• Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants.</li> <li>• All cement mixing must occur on impervious surfaces and within controlled bermed areas.</li> <li>• Oil residue must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site.</li> <li>• Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the place of construction.</li> <li>• No materials may be discharged from the construction camps.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Noise Impacts	<b>Direct impacts:</b> Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents as well as along internal access roads.	Medium	<ul style="list-style-type: none"> <li>• The contractor must ensure that noise levels remain within acceptable limits</li> <li>• Construction activities must be limited to normal working hours and according to municipal bylaws, i.e. working hours must be limited to weekdays as far as possible.</li> <li>• If construction is required on the weekend; permission from adjacent landowners will be required prior to construction.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on stormwater	<b>Direct impacts:</b> The accumulation of stormwater.	Medium	<ul style="list-style-type: none"> <li>• No stockpiles or construction materials may be stored or placed within any drainage line that may be in close proximity of storm water drains.</li> <li>• No stockpiles or construction materials may be stored or placed in close proximity to storm water drains.</li> <li>• The storm water system especially discharge points must be</li> </ul>	Low

## BASIC ASSESSMENT REPORT

3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			inspected and damaged areas must be repaired if required.	
	<p><b>Indirect impacts:</b> None identified</p>	N/A	N/A	N/A
	<p><b>Cumulative impacts:</b> None identified</p>	N/A	N/A	N/A
<b>OPERATIONAL PHASE IMPACTS</b>				
Impacts on Flora	<p><b>Direct impacts:</b> Positive impact by removing alien invasive plants, although care must be taken not to remove all vegetation at once, especially within the rainy season (could result in soil erosion and soil loss).</p>	Medium	<ul style="list-style-type: none"> <li>• Rehabilitate all areas cleared of invasive plants as soon as practically possible, utilising specified methods and species.</li> <li>• Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. Monitoring should continue for at least two years after construction is complete.</li> <li>• Follow manufacturer's instruction when using chemical methods, especially in terms of quantities, time of application etc.</li> <li>• Ensure that only properly trained people handle and make use of chemicals.</li> <li>• Dispose of the eradicated plant material at an approved solid waste disposal site.</li> <li>• Only indigenous plant species naturally occurring in the area should be used during the rehabilitation of the areas affected by the construction activities.</li> </ul>	Low
	Destruction of natural vegetation	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.</li> <li>• Ensure that maintenance work does not take place haphazardly, but according to a fixed plan.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using</li> </ul>	Low

## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.</p> <ul style="list-style-type: none"> <li>• Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> <li>• Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.</li> <li>• Plants that are not interfering with the operation of the powerline during the maintenance must not be disturbed.</li> </ul>	
	<p><b>Indirect impacts:</b> Bush encroachment</p>	Medium	<ul style="list-style-type: none"> <li>• Use grass sods that were removed prior to construction to rehabilitate the construction footprints. Sods must not be stored for lengthy periods and should not be stacked on top of each other or on top of grazed and moist grasslands. The sods should preferably be removed during the winter months and replanted by springtime latest.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.</li> <li>• Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> <li>• Remove excess <i>Acacia karoo</i>, <i>A melifera</i> and <i>Dichrostachys cinerea</i> seedlings along with any alien vegetation.</li> <li>• Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.</li> </ul>	Low
	<p><b>Cumulative impacts:</b></p>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

### 3. ALTERNATIVE 2 DIPOMONG TSWAING POWERLINE – BLUE ROUTE

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
Impacts on Wetland	<b>Direct impacts:</b> Maintenance and clearing of the servitude through the use of chemicals may also pollute nearby watercourses if not properly undertaken.	Medium	Care must be taken all the time when applying the herbicide to remove aliens	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Disruption to local residents	<b>Direct impacts:</b> Power cuts during maintenance may disrupt local people	Medium	Inform residents if planned power cuts at least 15 -30 days before implementing	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Fauna	<b>Direct impacts:</b> Faunal Disturbance - During the operational phase the mammal assemblages will be minimally disturbed by the functioning of the powerline and occasionally disturbed should maintenance of the infrastructure be required. It is not expected for the composition of fauna species to alter and the distribution and abundance of the faunal species should revert to that similar of the composition before construction. This impact will be on a limited basis dependent on the need for maintenance.	Medium	<ul style="list-style-type: none"> <li>• Areas not impacted by the associated infrastructure, as well as those considered to have a high biological diversity, should be maintained in their present states;</li> <li>• Maintenance activities should be limited to daylight hours and vehicles should remain on the designated roads at all times; and</li> <li>• The road network should be maintained as gravel tracks that allow for faunal dispersal.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> Local Business growth	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Socioeconomic	<b>Direct impacts:</b>	N/A	N/A	N/A
	<b>Indirect impacts:</b> Local Business growth	Medium	No mitigation measures are recommended.	Medium
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Visual Impacts	<b>Direct Impacts:</b> <b>Aesthetic quality and sense of place:</b> The operation of the new power lines and substations will cause intrusions on observers' views especially on those residents living within 1 km of the servitude. This will result from the introduction of new elements that are uncharacteristic of the study area and will alter the baseline condition to the visual environment. The industrial character of the power lines and substation will contrast severely with the rural and natural character of the landscape. These will be representative of anthropogenic alternations to a study area that is expected to impact on the value of the visual environment.	Low to High	<ul style="list-style-type: none"> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of weeds that may become an unsightly feature.</li> <li>• Maintenance of the servitude in terms of clearing up littering and dumped refuse is highly recommended. This must be done on a routine basis in order to keep the servitude neat and maintain a visually unobtrusive condition;</li> <li>• All lighting, especially perimeter security lighting at the substations must be shielded to minimise light spillage and pollution. No direct light sources must be seen from outside the site;</li> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may become an unsightly feature; and</li> <li>• Screen planting that was specifically established to minimise the intrusiveness of the power line or substation must be maintained and dead or sick plants replaced for a determinate period after construction.</li> </ul>	Low to High
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A

BASIC ASSESSMENT REPORT

**3. ALTERNATIVE 2 DIPOMPONG TSWAING POWERLINE – BLUE ROUTE**

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
Soil erosion	<b>Direct impacts:</b> Storm water runoff may cause soil erosion from the tower foundations	Medium	<ul style="list-style-type: none"> <li>• Regularly inspect all storm water channels</li> <li>• Provide soil conservation measures in areas of susceptible erosion around the tower foundations</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
<b>CONSTRUCTION PHASE</b>				
Impact on Fauna	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Loss of faunal habitat / Fragmentation from the clearing of vegetation communities for construction of the associated powerline infrastructure and servitude</li> <li>• Faunal Disturbance from construction activities.i.e. noise</li> <li>• Killing and snaring of fauna species may occur from construction personnel</li> </ul>	High	<ul style="list-style-type: none"> <li>• Only areas where construction is to occur should be cleared of vegetation;</li> <li>• No natural watercourses, pans, or wetlands should be disturbed by the development with a 500m buffer zone (marked during the construction phase) allowed for between the edge of any of the above mentioned features or an appropriate buffer zone as determined by a wetland specialist;</li> <li>• The extent of the construction should be confined to disturbed areas or those identified as having a low / medium ecological sensitivity and demarcated.</li> <li>• Where areas of high ecological sensitivity need to be disturbed, the necessary permits and mitigation measures recommended by the wetland specialist should be implemented.</li> <li>• No construction vehicles or personnel should be allowed to leave the demarcated area unless authorised to do so</li> <li>• Areas identified with high ecological sensitivity should be avoided during construction activities.</li> <li>• Areas that are not part of the site development plan should be marked as no-go zones;</li> <li>• The development should promote connectivity between ecologically important habitats by retaining natural corridors for the movement of fauna;</li> <li>• Roads should be planned to encourage faunal dispersal and minimize fragmentation of ecologically sensitive areas. Roads should preferably be maintained as gravel tracks;</li> <li>• Construction activities should be limited to daylight hours; and</li> <li>• Construction vehicles transporting materials to and from the construction site must be covered to reduce the formation of dust.</li> <li>• Construction personnel should be informed of the Animal Protection Act no. 71 of 1962 and encouraged not to harm any</li> </ul>	Medium

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			wildlife; and <ul style="list-style-type: none"> <li>• Construction personnel should undergo awareness training regarding fauna assemblages and the correct procedures to follow should fauna be found within the site. They should be encouraged</li> <li>• not to harm any wildlife. They should also be informed of any policies and procedures applicable for fauna and the environment.</li> </ul>	
Impacts on Avifauna	<i>Direct impacts:</i> Displacement due to habitat destruction and disturbance	Low	Restrict the construction activities to the construction footprint area. Avoid the removal of large trees.	Low
	Collisions with the earth wire of the proposed 132kV line - the greatest risk of collisions power lines.	Medium	<ul style="list-style-type: none"> <li>• The spans that cross drainage lines and wetland areas should be marked with Bird Flight Diverters on the earth wire of the line, five metres apart, alternating black and white</li> <li>• Identified high risk sections of the power line to be installed with a suitable anti bird collision marking device approved by Eskom, and as per Eskom standards.</li> </ul>	Low
	<b>Electrocutions</b> - Raptors and vultures that may occasionally forage in the study area	Medium	The poles should be fitted with bird perches on top of the poles to draw birds, particularly vultures, away from the potentially risky insulators	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impacts on Flora	Proposed Dipompong substation is <ul style="list-style-type: none"> <li>• Comprised of secondary Bushveld with a number of current disturbances.</li> <li>• Vegetation is Disturbed (grazed and trampled) trees are</li> </ul>	Medium	<ul style="list-style-type: none"> <li>• The route alignments must be fixed through areas with the least vegetation sensitivity.</li> <li>• A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to sensitive environs.</li> <li>• Prohibit vehicular or pedestrian access into natural areas beyond</li> </ul>	Low



## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p>Alternative Dimpopong sites are:</p> <ul style="list-style-type: none"> <li>• Situated where secondary bushveld, bushveld and a wetland area converge.</li> <li>• Wetland area is situated approximately 1km west of this proposed site.</li> <li>• Vegetation largely disturbed</li> </ul>		<p>the demarcated boundary of the construction area.</p> <ul style="list-style-type: none"> <li>• No open fires are permitted within naturally vegetated areas.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• A vegetation rehabilitation plan should be implemented. Grass can be removed as sods and stored within transformed vegetation – remove alien invasive vegetation prior to storing grasslands sods in transformed areas. Smaller shrubs and bulbs should also be removed and used for rehabilitation. The plants must preferably be removed during the winter months and be replanted by latest springtime. The grass sods should not be stacked on top of each other. Once construction is completed, these sods should be used to rehabilitate the disturbed areas from where they have been removed. In the absence of timely rainfall, the sods should be watered well after planting and at least twice more over the next 2 weeks.</li> <li>• Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>• No activities should take place during rainy events and at least 2 days afterwards.</li> </ul>	
	<p>Possible destruction of plants of conservation concern and protected tree species</p> <p>In both proposed Dipompong and Alternative substation, the protected tree <i>Boscia albitrunca</i> occurs in proximity to the proposed substation sites but no protected plant species is expected to occur.</p>		<ul style="list-style-type: none"> <li>• Prior to construction, the final route alignment should preferably be walked by a specialist to identify any possible plant species of conservation concern as well as protected tree species. Note that this should be done in the growing season of plants (Oct-March).</li> <li>• Although the secondary bushveld is regarded by this report as posing low constraint to the proposed powerline development, development should proceed with caution and it is advised that the final route alignment be walked by an ecologist or botanist and these plants removed and conserved if found to be within the development footprint.</li> <li>• Protected tree species was confirmed within the secondary</li> </ul>	

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p>Impact on the C PLAN Biodiversity Assessment and ESA</p> <ul style="list-style-type: none"> <li>• Both substations are situated on the edge of a CBA with the proposed substation encroached by urban expansion</li> </ul>		<p>bushveld.</p> <ul style="list-style-type: none"> <li>• The protected tree species along the powerline routes and within the substation footprint should preferably not be removed and only pruned where necessary. Note that removal and pruning will require a permit from the Department of Agriculture, Forestry and Fisheries (DAFF).</li> <li>• The population of <i>Boscia albitrunca</i> and <i>Sclerocarya birrea subspcaffra</i> and <i>Commelina bella</i> should be avoided along this route. If not possible, these plants should be removed and relocated to suitable habitat nearby or kept under suitable growing conditions and re-established during rehabilitation of the construction footprint (Note, these plants may only be removed with the permission of the provincial authority - permit).</li> <li>• Implement a Plant Rescue and Rehabilitation Plan: Where the plants of conservation concern are deemed to be under threat from the construction activity, the plants should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation after the construction.</li> <li>• Construction workers may not tamper or remove these plants and neither may anyone collect seed from the plants without permission from the local authority.</li> <li>• Cordon off the sensitive vegetation that house the protected plant species and the plants of conservation concern and protect from construction activities and vehicles.</li> </ul>	
	<p><b>Indirect impacts:</b> Spread of alien invasive vegetation</p>	Medium	<ul style="list-style-type: none"> <li>• Alien invasive species that were identified within the study area and in specific along the final route alignment should be removed prior to construction-related soil disturbances.</li> <li>• Compile and implement an alien invasive monitoring plan to remove alien invasive plant species along the chosen route alignments, prior to construction.</li> <li>• By removing these species, the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• All alien seedlings and saplings must be removed as they become evident for the duration of construction.</li> <li>• Manual / mechanical removal is preferred to chemical control.</li> <li>• All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction areas. This should be verified by the ECO.</li> </ul>	
	<p><b>Cumulative impacts</b> None identified</p>	N/A	N/A	N/A
Impacts on Wetland	<ul style="list-style-type: none"> <li>• Proposed Dimpopong substation is located approximately 700 m from a small Depressional Pan and falls on the edge of the Aquatic Critical Biodiversity Area.</li> <li>• Alternative for Dipompong substation is located approximately 200 m from the floodplain wetland.</li> </ul> <p><b>Direct impacts:</b> Changing the quantity and fluctuation properties of the watercourse e.g. by damming the water during construction and sedimentation of the watercourse by placing pylons within wetland area or riparian area, thereby diverting or impeding flow during construction</p>	High	<ul style="list-style-type: none"> <li>• No activities should take place in the watercourses and associated buffer zone. Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a water use license.</li> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>• A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</li> <li>• Prevent pedestrian and vehicular access into the wetland and buffer areas as well as riparian areas.</li> <li>• Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses</li> <li>• Restrict the use of vehicles in the watercourses. If unavoidable, plan activities in wetlands areas to take place within the drier winter months and use equipment with the smallest possible footprint e.g. quad bikes</li> <li>• Plan watercourse crossings to take place at predetermined points such as where the wetland width (and thus area to be impacted) is the smallest</li> <li>• Access roads and bridges should span the wetland area, without</li> </ul>	High

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			impacting on the permanent or seasonal zones <ul style="list-style-type: none"> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• Avoid linear disturbances that run parallel to a watercourse</li> <li>• Management of on-site water use and prevent stormwater or contaminated water directly entering the watercourse</li> <li>• Management of point discharges</li> <li>• Planning of construction site must include eventual rehabilitation / restoration of indigenous vegetative cover</li> <li>• Alien plant eradication and follow-up control activities prior to construction, to prevent spread into disturbed soils, as well as follow-up control during construction</li> <li>• The amount of vegetation removed should be limited to the least amount possible</li> <li>• Rehabilitation of damage/impacts that arise as a result of construction must be implemented immediately upon completion of construction</li> </ul>	
	<p><b>Indirect impacts:</b>                      Alteration of water quality – increasing the amounts of nutrients (phosphate, nitrite, nitrate) through disposal or discharge of human (including partially treated and untreated) sewage during the construction phase of the development</p>	Medium	<ul style="list-style-type: none"> <li>• Provision of adequate sanitation facilities located outside of the wetland/riparian area or its associated buffer zone</li> <li>• Establishment of buffer zones to reduce nutrient inputs in diffuse flow</li> <li>• Implementation of appropriate stormwater management around the excavation to prevent the ingress of run-off into the excavation.</li> </ul>	Medium

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Alteration of water quality – toxic contaminants (including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons and discharge of solvents, and other industrial chemicals	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</li> <li>• Ensure that maintenance work does not take place haphazardly, but, according to a fixed plan, from one area to the other.</li> <li>• Maintenance of construction vehicles</li> <li>• Control of waste discharges</li> <li>• Guidelines for implementing Clean Technologies</li> <li>• Maintenance of buffer zones to trap sediments with associated toxins</li> </ul>	Medium
	<p><b>Cumulative impacts:</b> Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount) through earthwork activities, vegetation clearing, disturbance of soil and slopes through creation of roads and tracks, changes and run off characteristics and erosion</p>	High	<ul style="list-style-type: none"> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>• A temporary fence or demarcation must be erected around the works area to prevent water runoff and erosion of the disturbed or heaped soils into wetland areas.</li> <li>• Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• A vegetation rehabilitation plan should be implemented.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover.</li> <li>• Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should</li> </ul>	High

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>be fenced off to prevent vehicular and pedestrian access.</p> <ul style="list-style-type: none"> <li>• Ideally, the rehabilitated construction footprints, especially on slopes and along riparian and wetland areas, must be fenced to prevent pedestrian access and trampling. Once rehabilitation was observed to be successful during monitoring, the fenced may be removed (at least two years).</li> <li>• During the construction phase measures must be put in place to control the flow of excess water so that it does not impact on the surface vegetation.</li> <li>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>• Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>• Implementation of best management practices Source-directed controls</li> <li>• Buffer zones to trap sediments</li> </ul>	
	Changing the physical structure within a water resource (habitat) through encroachment to achieve maximum commercial returns, deposition of wind-blown sand and loss of fringing vegetation and erosion	High	<ul style="list-style-type: none"> <li>• Other than approved and authorized structure, no other development or maintenance infrastructure is allowed within the delineated wetland and riparian areas or their associated buffer zones.</li> <li>• Demarcate the wetlands and riparian areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas</li> <li>• Linear developments (e.g. roads) should span the watercourse</li> <li>• Weed control in buffer zone</li> <li>• Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed.</li> <li>• Monitor the establishment of alien invasive species within the areas affected by the construction and maintenance of the powerline and take immediate corrective action where invasive species are observed to establish.</li> </ul>	Medium

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
Impacts on Heritage Resources	<p><b>Direct impacts:</b>  <b>Impacts on graves</b> - The proposed study area has a number of burial places ranging from very large formal cemeteries, to individual graves located in the vicinity of abandoned homesteads. The proposed site is also located close to a small cemetery which is considered a cultural and historical location</p>	High	All the identified burial places are well demarcated and visible and would therefore be easily avoided. The power lines are routed to bypass the various burial places and that they are demarcated with danger tape for the duration of the power line construction.	Low
	<p><b>Homesteads</b> - a number of farm labourer homesteads have been identified in the study area.</p>	Low	Although these features are located in close proximity of a section of the proposed power line, it is unsure if the power line would have an impact on these features. It is recommended that these sites are identified during the walk down and that mitigation measures are then developed for each individual site specifically.	Low
	<p><b>Indirect impacts:</b> None identified</p>	N/A	N/A	N/A
	<p><b>Cumulative impacts:</b> None identified</p>	N/A	N/A	N/A
Visual Impacts	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Removal of vegetation from construction activities</li> <li>• Construction of new access roads</li> <li>• Construction of camps and work force</li> <li>•</li> </ul> <p>All these activities will impact on the visual value and quality of the landscape character especially in the</p>	Medium	<ul style="list-style-type: none"> <li>• Locate construction camps and stock yards in the least visible areas or locate it on areas that are already disturbed such as agricultural fields for example; The screening capacity of the site can be temporarily enhanced through the erection of a 3 m high shade cloth fence around the construction camp and substation site during construction. The colour of the shade cloth should be similar to that of the adjacent vegetation, i.e. a light brown or khaki green;</li> <li>• Keep the construction camp and construction area neat and tidy at all times. Remove any waste products from the site or contain it in an enclosed area out of sight from viewers;</li> </ul>	Low

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4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	areas that are considered natural.		<ul style="list-style-type: none"> <li>• Establish limits of disturbances during construction through the demarcating of the construction areas to prevent unnecessary damage to vegetation;</li> <li>• Keep to existing road infrastructure as far as possible to minimise the physical damage to vegetation in the power line servitude; and</li> <li>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed surfaces.</li> <li>• Minimise unsightly cut- and fill areas by stepping the substation building platform and thereby lowering the structure by as much as possible;</li> <li>• Shape the cut and fill embankments by rounding the edges and giving it a more natural appearance if space permits. Alternatively, embankments must be stabilised preferably through planting (unlikely to be an option inside the substation boundary fence due to safety consideration) to cover up any exposed soil and to restrict erosion;</li> <li>• Establish screening planting along the sides of the substations that front towards the communities. Alternatively it should be relocated to a site that has a natural screening capacity;</li> <li>• Signage should be simple and unobtrusive and not protrude above the skyline when               <ul style="list-style-type: none"> <li>• viewed from any direction; and</li> </ul> </li> <li>• A definite effort should be made to reduce the height and scale of the substations, if at all possible.</li> </ul>	
Geotechnical Impacts	<b>Direct impacts:</b> Soil disturbance during construction at the pylon sites which may destabilise the soil and lead to soil erosion	High	<ul style="list-style-type: none"> <li>• Use of berms and drainage channels to direct water away from the construction areas where necessary</li> <li>• Use existing access roads wherever possible</li> <li>• Rehabilitate disturbed areas as soon as possible after construction</li> <li>• Correct engineering design of stream and water course crossings</li> <li>• Correct engineering design of any new access roads</li> </ul>	Medium -low
	The possible presence of shallow rock	Medium	<ul style="list-style-type: none"> <li>• Steep slopes (&gt;45°) and areas immediately below them should</li> </ul>	Low



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4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	(granite, granophyre & gabbro) or hardpan calcrete (within 1,5m of surface) could result in areas of difficult excavation, NHBRC class R.		be avoided for the siting of pylons and maintenance roads wherever possible. These areas are subject to slope failure and are vulnerable to erosion.	
	Shallow perched water table could saturate foundation soils and have a detrimental effect on bearing capacity at the substation sites.	Medium	<ul style="list-style-type: none"> <li>• Floodplains and areas in close proximity to rivers need to be avoided.</li> <li>• No pylons should be placed in or close to pans, vleis and wetlands.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Dust Impacts	<b>Direct impacts:</b> Construction machinery and heavy vehicles which are likely to make use of the existing farm roads to transport equipment and material to the construction site, are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads	Low	<ul style="list-style-type: none"> <li>• Continuous watering of the site should be carried out to prevent dust pollution during windy and dry conditions.</li> <li>• A continuous dust monitoring process needs to be undertaken during construction.</li> <li>• Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>• All vehicles transporting friable materials such a sand, rubble etc must be covered by a tarpaulin or wet down.</li> <li>• Construction work to be undertaken during weekdays as far as practical.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified.	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified.	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
Spillage of hazardous substances	<b>Direct impacts</b> Several activities can cause the spillage of hazardous substances, causing contamination of receiving environment at the construction site. These include spillages from unmanaged ablution facilities, spillages of fuels and oils, spillage of concrete and cement and runoff of contaminated cement wastewater.	Medium	Store fuels and chemicals in a bunded area. Provide staff with hazardous materials training.	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Fires	<b>Direct impacts</b> Fires may be caused through a number of actions or reasons, such as defective equipment, cigarette butts, and spilled fuels and oils. Fires are generally the result of bad or ineffective management, or negligence.	Medium	Fire fighting equipment to be kept on site and serviced regularly.	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impact on socio-economics	<b>Direct impacts:</b> Impact on nearby residential areas - Influx of workers in the area may raise concerns from neighbouring residents	Medium	<ul style="list-style-type: none"> <li>• All adjacent landowners must be informed of the construction processes prior to commencement of construction activities.</li> <li>• Adjacent land owners must be informed timeously of any service stoppages in their areas.</li> <li>• Notification must include possible timeframes for stoppages.</li> <li>• Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners.</li> <li>• Affected land owners must be timeously informed of any/all maintenance of the bulk water services supply which may result in</li> </ul>	Low

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4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			service stoppages to their properties. Again this must include possible timeframes so alternatives can be provided.	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on traffic and local roads	<b>Direct impacts:</b> Traffic will be congested as a result of construction activities. In addition, traffic increase can lead to road damage, erosion, accidents and even traffic delays Construction machinery and heavy vehicles are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads.		<ul style="list-style-type: none"> <li>• Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00).</li> <li>• It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system.</li> <li>• Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>• Implement dust suppression measures (wetting or application of soil binding compound) in all areas that will be affected by construction</li> <li>• activities and where dust will be generated</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on socio-economics:	<b>Direct impacts:</b> Economic and employment status will be impacted on due to access and road construction, building construction, paving construction and landscaping.	Medium	<p>The construction phase will provide direct temporary employment for locals, and</p> <ul style="list-style-type: none"> <li>• Local communities should be informed upfront and in no uncertain terms that the possibility of local employment is most unlikely so that unrealistic expectations are not created</li> <li>• Where unskilled labour is required, it should be sourced from the local communities</li> <li>• Where project activities lead to the creation of informal job opportunities such as food stalls, contractors should be encouraged to allow such activities</li> </ul>	Medium

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4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p><b>Indirect impacts:</b> Indirect employment through demand for construction materials, and support services, as well as empowerment and skills transfer opportunities.</p>	Medium	No mitigation measure required	Medium
	<p><b>Cumulative impacts:</b> None identified</p>	N/A	N/A	N/A
Impact on infrastructure services	<p><b>Direct impacts:</b> The status of the infrastructure services may be impacted on through the establishment of the site and the construction of roads.</p>		<p><b>There are no mitigation measures as the impact is positive.</b></p> <ul style="list-style-type: none"> <li>• The status of the infrastructure services in the surrounding area will be improved through the establishment of the site and the upgrade of roads in the area.</li> <li>• Insect the site for burst, blocked or leaking water pipe</li> <li>• During the operational phase, the sewage system must be inspected for leakages on regular basis and any leakages must be attended to immediately.</li> </ul>	
	<p><b>Indirect impacts:</b> None identified</p>	N/A	N/A	N/A
	<p><b>Cumulative impacts:</b> None identified</p>	N/A	N/A	N/A
Increased soil erosion	<p>Loss of fertile topsoil will occur due to the initial vegetation clearing (for access roads to tower site); and construction earthworks may cause increased soil erosion as well as stormwater runoff.</p> <p>The area where the power line is proposed to be constructed may be undulating.</p>		<ul style="list-style-type: none"> <li>• The route deviations impacting mostly on disturbed areas should be considered</li> <li>• It is recommended that care should be taken when constructing a power line as this might result in soil erosion. If at all possible, construction activities should preferably take place during the dry winter months.</li> <li>• Stockpiles in excavated areas should not be higher than 2 m to avoid compaction and visual impacts.</li> <li>• To prevent erosion of materials stockpiled for a long period of time, the material must be retained in a bermed area.</li> <li>• Do not allow erosion to develop on a large scale before taking action.</li> </ul>	

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4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas.</li> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed.</li> <li>• Colonisation of the disturbed areas by plants species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.</li> <li>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> </ul>	

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
Health and safety impacts	<b>Direct impacts:</b> Impacts/injuries to animals or humans entering the site unnoticed	Medium	<ul style="list-style-type: none"> <li>• The construction site and tower excavations must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area.</li> <li>• No fires are allowed at or around the construction site.</li> <li>• The contractor must provide gas fired stoves and heaters to the workers</li> <li>• Due to the reason that the number of population in the receiving environment will increase, it is therefore important to develop and implement Health Awareness programs to reduce the wide spread of diseases such as HIV/AIDS as well as educating people on issues related to safe sex.</li> <li>• Since the majority of the households in the area lack formal basic infrastructures for sanitation (flush toilets), it will also be advisable to provide mobile toilets to avoid contamination of land and surface water (e.g. rivers, springs and wetlands), as well as providing safe drinking water to reduce the consumption of contaminated water from streams/rivers or boreholes.</li> </ul>	Low
	Workforce and construction sites	Medium	<ul style="list-style-type: none"> <li>• Ensure all construction vehicles and machinery is under the control of competent personnel.</li> <li>• Limit access to the construction site to the workforce only.</li> <li>• Safety clothes and equipment must be worn at all times.</li> <li>• Comply with the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Waste Management impacts	<b>Direct impacts:</b> Improper storage and disposal of solid waste, littering and ablution facilities	Medium	<ul style="list-style-type: none"> <li>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.</li> <li>• All solid waste must then be disposed of at the nearest licensed</li> </ul>	Low

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			landfill and safe disposal certificates obtained. <ul style="list-style-type: none"> <li>• Separate waste skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.</li> <li>• Littering will not be permitted on the site and general housekeeping will be enforced.</li> <li>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.</li> <li>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li> <li>• Adequate toilet facilities must be provided for all staff members as standard construction practice.</li> <li>• Chemical toilets must be placed within the construction camp and not in close proximity to the river. The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.</li> <li>• No wastes may remain on the construction site for more than two weeks</li> <li>• Keep the properties neat and litter free at all times and maintain the landscaped areas.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on ground water	<b>Direct impacts:</b> Groundwater contamination - Hydrocarbon leakages from plant vehicles and poor management of sources of hydrocarbon leakages has a	Medium	<ul style="list-style-type: none"> <li>• Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants.</li> <li>• All cement mixing must occur on impervious surfaces and within controlled bermed areas.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	potential to pollute underground and surrounding resources		<ul style="list-style-type: none"> <li>• Oil residue must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site.</li> <li>• Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the place of construction.</li> <li>• No materials may be discharged from the construction camps.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Noise Impacts	<b>Direct impacts:</b> Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents as well as along internal access roads.	Medium	<ul style="list-style-type: none"> <li>• The contractor must ensure that noise levels remain within acceptable limits</li> <li>• Construction activities must be limited to normal working hours and according to municipal bylaws, i.e. working hours must be limited to weekdays as far as possible.</li> <li>• If construction is required on the weekend; permission from adjacent landowners will be required prior to construction.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on stormwater	<b>Direct impacts:</b> The accumulation of stormwater.	Medium	<ul style="list-style-type: none"> <li>• No stockpiles or construction materials may be stored or placed within any drainage line that may be in close proximity of storm water drains.</li> <li>• No stockpiles or construction materials may be stored or placed in close proximity to storm water drains.</li> <li>• The storm water system especially discharge points must be inspected and damaged areas must be repaired if required.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b>	N/A	N/A	N/A



## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			
OPERATIONAL PHASE IMPACTS				
Impacts on Flora	<p><b>Direct impacts:</b> Positive impact by removing alien invasive plants, although care must be taken not to remove all vegetation at once, especially within the rainy season (could result in soil erosion and soil loss).</p>	Medium	<ul style="list-style-type: none"> <li>• Rehabilitate all areas cleared of invasive plants as soon as practically possible, utilising specified methods and species.</li> <li>• Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. Monitoring should continue for at least two years after construction is complete.</li> <li>• Follow manufacturer's instruction when using chemical methods, especially in terms of quantities, time of application etc.</li> <li>• Ensure that only properly trained people handle and make use of chemicals.</li> <li>• Dispose of the eradicated plant material at an approved solid waste disposal site.</li> <li>• Only indigenous plant species naturally occurring in the area should be used during the rehabilitation of the areas affected by the construction activities.</li> </ul>	Low
	Destruction of natural vegetation	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.</li> <li>• Ensure that maintenance work does not take place haphazardly, but according to a fixed plan.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.</li> <li>• Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.</li> <li>Plants that are not interfering with the operation of the powerline during the maintenance must not be disturbed.</li> </ul>	
	<p><b>Indirect impacts:</b> Bush encroachment</p>	Medium	<ul style="list-style-type: none"> <li>Use grass sods that were removed prior to construction to rehabilitate the construction footprints. Sods must not be stored for lengthy periods and should not be stacked on top of each other or on top of grazed and moist grasslands. The sods should preferably be removed during the winter months and replanted by springtime latest.</li> <li>Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.</li> <li>Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> <li>Remove excess <i>Acacia karoo</i>, <i>A melifera</i> and <i>Dichrostachys cinerea</i> seedlings along with any alien vegetation.</li> <li>Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.</li> </ul>	Low
	<b>Cumulative impacts:</b>	N/A	N/A	N/A
Impacts on Wetland	<p><b>Direct impacts:</b> Maintenance and clearing of the servitude through the use of chemicals may also pollute nearby watercourses if not properly undertaken.</p>	Medium	Care must be taken all the time when applying the herbicide to remove aliens	Low
	<b>Indirect impacts:</b>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Disruption to local residents	<b>Direct impacts:</b> Power cuts during maintenance may disrupt local people	Medium	Inform residents if planned power cuts at least 15 -30 days before implementing	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Fauna	<b>Direct impacts:</b> Faunal Disturbance - During the operational phase the mammal assemblages will be minimally disturbed by the functioning of the powerline and occasionally disturbed should maintenance of the infrastructure be required. It is not expected for the composition of fauna species to alter and the distribution and abundance of the faunal species should revert to that similar of the composition before construction. This impact will be on a limited basis dependent on the need for maintenance.	Medium	<ul style="list-style-type: none"> <li>• Areas not impacted by the associated infrastructure, as well as those considered to have a high biological diversity, should be maintained in their present states;</li> <li>• Maintenance activities should be limited to daylight hours and vehicles should remain on the designated roads at all times; and</li> <li>• The road network should be maintained as gravel tracks that allow for faunal dispersal.</li> </ul>	Low
	<b>Indirect impacts:</b> Local Business growth	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Socioeconomic	<b>Direct impacts:</b>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> Local Business growth	Medium	No mitigation measures are recommended.	Medium
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Visual Impacts	<b>Direct Impacts:</b> <b>Aesthetic quality and sense of place:</b> The operation of the new power lines and substations will cause intrusions on observers' views especially on those residents living within 1 km of the servitude. This will result from the introduction of new elements that are uncharacteristic of the study area and will alter the baseline condition to the visual environment. The industrial character of the power lines and substation will contrast severely with the rural and natural character of the landscape. These will be representative of anthropogenic alternations to a study area that is expected to impact on the value of the visual environment.	Low to High	<ul style="list-style-type: none"> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of weeds that may become an unsightly feature.</li> <li>• Maintenance of the servitude in terms of clearing up littering and dumped refuse is highly recommended. This must be done on a routine basis in order to keep the servitude neat and maintain a visually unobtrusive condition;</li> <li>• All lighting, especially perimeter security lighting at the substations must be shielded to minimise light spillage and pollution. No direct light sources must be seen from outside the site;</li> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may become an unsightly feature; and</li> <li>• Screen planting that was specifically established to minimise the intrusiveness of the power line or substation must be maintained and dead or sick plants replaced for a determinate period after construction.</li> </ul>	Low to High
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Soil erosion	<b>Direct impacts:</b> <b>Storm water runoff may cause soil erosion from the tower foundations</b>	Medium	<ul style="list-style-type: none"> <li>• Regularly inspect all storm water channels</li> <li>• Provide soil conservation measures in areas of susceptible erosion around the tower foundations</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

4. PROPOSED DIMPOPONG SUBSTATION AND ALTERNATIVE DIMPOMPONG AND TSWAING SUBSTATIONS				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
<b>CONSTRUCTION PHASE</b>				
Impact on Fauna	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Loss of faunal habitat / Fragmentation from the clearing of vegetation communities for construction of the associated powerline infrastructure and servitude</li> <li>• Faunal Disturbance from construction activities.i.e. noise</li> <li>• Killing and snaring of fauna species may occur from construction personnel</li> </ul>	High	<ul style="list-style-type: none"> <li>• Only areas where construction is to occur should be cleared of vegetation;</li> <li>• No natural watercourses, pans, or wetlands should be disturbed by the development with a 500m buffer zone (marked during the construction phase) allowed for between the edge of any of the above mentioned features or an appropriate buffer zone as determined by a wetland specialist;</li> <li>• The extent of the construction should be confined to disturbed areas or those identified as having a low / medium ecological sensitivity and demarcated.</li> <li>• Where areas of high ecological sensitivity need to be disturbed, the necessary permits and mitigation measures recommended by the wetland specialist should be implemented.</li> <li>• No construction vehicles or personnel should be allowed to leave the demarcated area unless authorised to do so</li> <li>• Areas identified with high ecological sensitivity should be avoided during construction activities.</li> </ul>	Medium

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Areas that are not part of the site development plan should be marked as no-go zones;</li> <li>• The development should promote connectivity between ecologically important habitats by retaining natural corridors for the movement of fauna;</li> <li>• Roads should be planned to encourage faunal dispersal and minimize fragmentation of ecologically sensitive areas. Roads should preferably be maintained as gravel tracks;</li> <li>• Construction activities should be limited to daylight hours; and</li> <li>• Construction vehicles transporting materials to and from the construction site must be covered to reduce the formation of dust.</li> <li>• Construction personnel should be informed of the Animal Protection Act no. 71 of 1962 and encouraged not to harm any wildlife; and</li> <li>• Construction personnel should undergo awareness training regarding fauna assemblages and the correct procedures to follow should fauna be found within the site. They should be encouraged not to harm any wildlife. They should also be informed of any policies and procedures applicable for fauna and the environment.</li> </ul>	
Impacts on Avifauna	<i>Direct impacts:</i> Displacement due to habitat destruction and disturbance	Low	Restrict the construction activities to the construction footprint area. Avoid the removal of large trees.	Low
	Collisions with the earth wire of the proposed 132kV line - the greatest risk of collisions power lines.	Medium	<ul style="list-style-type: none"> <li>• The spans that cross drainage lines and wetland areas should be marked with Bird Flight Diverters on the earth wire of the line, five metres apart, alternating black and white</li> <li>• Identified high risk sections of the power line to be installed with a suitable anti bird collision marking device approved by Eskom, and as per Eskom standards.</li> </ul>	Low
	<b>Electrocutions</b> - Raptors and vultures that may occasionally forage in the study area	Medium	The poles should be fitted with bird perches on top of the poles to draw birds, particularly vultures, away from the potentially risky insulators	Low

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impacts on Flora	<p>Proposed Tswaing substation is</p> <ul style="list-style-type: none"> <li>• The vegetation comprised disturbed Bushveld vegetation with some human factors (residential and overgrazing)</li> <li>• Two invasive plant species (<i>Cereus jamacaru</i> (Queen of the Night) and a <i>Yucca species</i>).</li> </ul> <p>Alternative Tswaing sites are:</p> <ul style="list-style-type: none"> <li>• Situated within transformed / secondary Bushveld and within a wetland area</li> <li>• Vegetation within the proposed site is largely disturbed; access roads and edge effects could impact on the functionality of the wetland area.</li> </ul>	Medium	<ul style="list-style-type: none"> <li>• The route alignments must be fixed through areas with the least vegetation sensitivity.</li> <li>• A temporary fence or demarcation must be erected around the construction area (include the servitude, construction camps, areas where material is stored and the actual footprint of the development) to prevent access to sensitive environs.</li> <li>• Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.</li> <li>• No open fires are permitted within naturally vegetated areas.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>• A vegetation rehabilitation plan should be implemented. Grass can be removed as sods and stored within transformed vegetation – remove alien invasive vegetation prior to storing grasslands sods in transformed areas. Smaller shrubs and bulbs should also be removed and used for rehabilitation. The plants must preferably be removed during the winter months and be replanted by latest springtime. The grass sods should not be stacked on top of each other. Once construction is completed, these sods should be used to rehabilitate the disturbed areas from where they have been removed. In the absence of timely rainfall, the sods should be watered well after planting and at least twice more over the next 2 weeks.</li> <li>• Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the</li> </ul>	Low

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			local authority. <ul style="list-style-type: none"> <li>No activities should take place during rainy events and at least 2 days afterwards.</li> </ul>	
	Possible destruction of plants of conservation concern and protected tree species <ul style="list-style-type: none"> <li>Three individuals of the protected tree <i>Combretum imberbe</i> (Leadwood) occur around the proposed Tswaing substation site.</li> <li>The protected tree <i>Boscia albitrunca</i> occurs in proximity to the Alternative substation site but no protected plant species is expected to occur.</li> </ul> Impact on the C PLAN Biodiversity Assessment and ESA <ul style="list-style-type: none"> <li>The proposed Tswaing substation site are situated outside of the protected area as well as the CBA encroached by urban expansion</li> <li>The Alternative Tswaing substation site is Situated within a CBA and the area is encroached by urban expansion</li> </ul>		<ul style="list-style-type: none"> <li>Prior to construction, the final route alignment should preferably be walked by a specialist to identify any possible plant species of conservation concern as well as protected tree species. Note that this should be done in the growing season of plants (Oct-March).</li> <li>Although the secondary bushveld is regarded by this report as posing low constraint to the proposed powerline development, development should proceed with caution and it is advised that the final route alignment be walked by an ecologist or botanist and these plants removed and conserved if found to be within the development footprint.</li> <li>Protected tree species was confirmed within the secondary bushveld.</li> <li>The protected tree species along the powerline routes and within the substation footprint should preferably not be removed and only pruned where necessary. Note that removal and pruning will require a permit from the Department of Agriculture, Forestry and Fisheries (DAFF).</li> <li>The population of <i>Combretum imberbe</i> should be avoided along this route. If not possible, these plants should be removed and relocated to suitable habitat nearby or kept under suitable growing conditions and re-established during rehabilitation of the construction footprint (Note, these plants may only be removed with the permission of the provincial authority - permit).</li> <li>Implement a Plant Rescue and Rehabilitation Plan: Where the plants of conservation concern are deemed to be under threat from the construction activity, the plants should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation after the construction.</li> <li>Construction workers may not tamper or remove these plants and neither may anyone collect seed from the plants without permission</li> </ul>	



## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			from the local authority. <ul style="list-style-type: none"> <li>• Cordon off the sensitive vegetation that house the protected plant species and the plants of conservation concern and protect from construction activities and vehicles.</li> </ul>	
	<b>Indirect impacts:</b> Spread of alien invasive vegetation	Medium	<ul style="list-style-type: none"> <li>• Alien invasive species that were identified within the study area and in specific along the final route alignment should be removed prior to construction-related soil disturbances.</li> <li>• Compile and implement an alien invasive monitoring plan to remove alien invasive plant species along the chosen route alignments, prior to construction.</li> <li>• By removing these species, the spread of seeds will be prevented into disturbed soils which could thus have a positive impact on the surrounding natural vegetation.</li> <li>• All alien seedlings and saplings must be removed as they become evident for the duration of construction.</li> <li>• Manual / mechanical removal is preferred to chemical control.</li> <li>• All construction vehicles and equipment, as well as construction material should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access on to the construction areas. This should be verified by the ECO.</li> </ul>	Low
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impacts on Wetland	<ul style="list-style-type: none"> <li>• Proposed Dimpopong substation is located approximately 700 m from a small Depressional Pan and falls on the edge of the Aquatic Critical Biodiversity Area.</li> </ul>	High	<ul style="list-style-type: none"> <li>• No activities should take place in the watercourses and associated buffer zone. Where the above is unavoidable, only the necessary footprint and additional access roads can be considered. This is subjected to authorization by means of a water use license.</li> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>• A temporary fence or demarcation must be erected around the works area to prevent access to sensitive environs. The works</li> </ul>	High

BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<ul style="list-style-type: none"> <li>Alternative for Dipompong substation is located approximately 200 m from the floodplain wetland.</li> </ul> <p><b>Direct impacts:</b> Changing the quantity and fluctuation properties of the watercourse e.g. by damming the water during construction and sedimentation of the watercourse by placing pylons within wetland area or riparian area, thereby diverting or impeding flow during construction</p>		<p>areas generally include the servitude, construction camps, areas where material is stored and the actual footprint of infrastructure.</p> <ul style="list-style-type: none"> <li>Prevent pedestrian and vehicular access into the wetland and buffer areas as well as riparian areas.</li> <li>Consider the various methods for stringing cables and select whichever method(s) that will have the least impact on watercourses</li> <li>Restrict the use of vehicles in the watercourses. If unavoidable, plan activities in wetlands areas to take place within the drier winter months and use equipment with the smallest possible footprint e.g. quad bikes</li> <li>Plan watercourse crossings to take place at predetermined points such as where the wetland width (and thus area to be impacted) is the smallest</li> <li>Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones</li> <li>Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.</li> <li>Avoid linear disturbances that run parallel to a watercourse</li> <li>Management of on-site water use and prevent stormwater or contaminated water directly entering the watercourse</li> <li>Management of point discharges</li> <li>Planning of construction site must include eventual rehabilitation / restoration of indigenous vegetative cover</li> <li>Alien plant eradication and follow-up control activities prior to construction, to prevent spread into disturbed soils, as well as follow-up control during construction</li> <li>The amount of vegetation removed should be limited to the least amount possible</li> <li>Rehabilitation of damage/impacts that arise as a result of construction must be implemented immediately upon completion of construction</li> </ul>	

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<p><b>Indirect impacts:</b> Alteration of water quality – increasing the amounts of nutrients (phosphate, nitrite, nitrate) through disposal or discharge of human (including partially treated and untreated) sewage during the construction phase of the development</p>	Medium	<ul style="list-style-type: none"> <li>• Provision of adequate sanitation facilities located outside of the wetland/riparian area or its associated buffer zone</li> <li>• Establishment of buffer zones to reduce nutrient inputs in diffuse flow</li> <li>• Implementation of appropriate stormwater management around the excavation to prevent the ingress of run-off into the excavation.</li> </ul>	Medium
	Alteration of water quality – toxic contaminants (including toxic metal ions (e.g. copper, lead, zinc) and hydrocarbons and discharge of solvents, and other industrial chemicals	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land shall be left in a condition as close as possible to that prior to use.</li> <li>• Ensure that maintenance work does not take place haphazardly, but, according to a fixed plan, from one area to the other.</li> <li>• Maintenance of construction vehicles</li> <li>• Control of waste discharges</li> <li>• Guidelines for implementing Clean Technologies</li> <li>• Maintenance of buffer zones to trap sediments with associated toxins</li> </ul>	Medium
	<p><b>Cumulative impacts:</b> Changing the amount of sediment entering water resource and associated change in turbidity (increasing or decreasing the amount) through earthwork activities, vegetation clearing, disturbance of soil and slopes through creation of roads and tracks, changes and run off characteristics and erosion</p>	High	<ul style="list-style-type: none"> <li>• Construction in and around watercourses must be restricted to the dryer winter months.</li> <li>• A temporary fence or demarcation must be erected around the works area to prevent water runoff and erosion of the disturbed or heaped soils into wetland areas.</li> <li>• Access roads and bridges should span the wetland area, without impacting on the permanent or seasonal zones.</li> <li>• Formalise access roads and make use of existing roads and tracks where feasible, rather than creating new routes through</li> </ul>	High

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>naturally vegetated areas.</p> <ul style="list-style-type: none"> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• A vegetation rehabilitation plan should be implemented.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover.</li> <li>• Rehabilitation plans must be submitted and approved for rehabilitation of damage during construction and that plan must be implemented immediately upon completion of construction.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular and pedestrian access.</li> <li>• Ideally, the rehabilitated construction footprints, especially on slopes and along riparian and wetland areas, must be fenced to prevent pedestrian access and trampling. Once rehabilitation was observed to be successful during monitoring, the fenced may be removed (at least two years).</li> <li>• During the construction phase measures must be put in place to control the flow of excess water so that it does not impact on the surface vegetation.</li> <li>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> <li>• Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>• Implementation of best management practices Source-directed controls</li> <li>• Buffer zones to trap sediments</li> </ul>	

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Changing the physical structure within a water resource (habitat) through encroachment to achieve maximum commercial returns, deposition of wind-blown sand and loss of fringing vegetation and erosion	High	<ul style="list-style-type: none"> <li>• Other than approved and authorized structure, no other development or maintenance infrastructure is allowed within the delineated wetland and riparian areas or their associated buffer zones.</li> <li>• Demarcate the wetlands and riparian areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas</li> <li>• Linear developments (e.g. roads) should span the watercourse</li> <li>• Weed control in buffer zone</li> <li>• Monitor rehabilitation and the occurrence of erosion twice during the rainy season for at least two years and take immediate corrective action where needed.</li> <li>• Monitor the establishment of alien invasive species within the areas affected by the construction and maintenance of the powerline and take immediate corrective action where invasive species are observed to establish.</li> </ul>	Medium
Impacts on Heritage Resources	<p><b>Direct impacts:</b></p> <p><b>Impacts on graves</b> - The proposed study area has a number of burial places ranging from very large formal cemeteries, to individual graves located in the vicinity of abandoned homesteads. The proposed site is also located close to a small cemetery which is considered a cultural and historical location</p>	High	All the identified burial places are well demarcated and visible and would therefore be easily avoided. The power lines are routed to bypass the various burial places and that they are demarcated with danger tape for the duration of the power line construction.	Low
	<p><b>Homesteads</b> - a number of farm labourer homesteads have been identified in the study area.</p>	Low	Although these features are located in close proximity of a section of the proposed power line, it is unsure if the power line would have an impact on these features. It is recommended that these sites are identified during the walk down and that mitigation measures are then developed for each individual site specifically.	Low

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Visual Impacts	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• Removal of vegetation from construction activities</li> <li>• Construction of new access roads</li> <li>• Construction of camps and work force</li> <li>• </li> </ul> <p>All these activities will impact on the visual value and quality of the landscape character especially in the areas that are considered natural.</p>	Medium	<ul style="list-style-type: none"> <li>• Locate construction camps and stock yards in the least visible areas or locate it on areas that are already disturbed such as agricultural fields for example; The screening capacity of the site can be temporarily enhanced through the erection of a 3 m high shade cloth fence around the construction camp and substation site during construction. The colour of the shade cloth should be similar to that of the adjacent vegetation, i.e. a light brown or khaki green;</li> <li>• Keep the construction camp and construction area neat and tidy at all times. Remove any waste products from the site or contain it in an enclosed area out of sight from viewers;</li> <li>• Establish limits of disturbances during construction through the demarcating of the construction areas to prevent unnecessary damage to vegetation;</li> <li>• Keep to existing road infrastructure as far as possible to minimise the physical damage to vegetation in the power line servitude; and</li> <li>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed surfaces.</li> <li>• Minimise unsightly cut- and fill areas by stepping the substation building platform and thereby lowering the structure by as much as possible;</li> <li>• Shape the cut and fill embankments by rounding the edges and giving it a more natural appearance if space permits. Alternatively, embankments must be stabilised preferably through planting (unlikely to be an option inside the substation boundary fence due to safety consideration) to cover up any exposed soil and to restrict erosion;</li> </ul>	Low

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Establish screening planting along the sides of the substations that front towards the communities. Alternatively it should be relocated to a site that has a natural screening capacity;</li> <li>• Signage should be simple and unobtrusive and not protrude above the skyline when</li> <li>• viewed from any direction; and</li> <li>• A definite effort should be made to reduce the height and scale of the substations, if at all possible.</li> </ul>	
Geotechnical Impacts	<p><b>Direct impacts:</b> Soil disturbance during construction at the pylon sites which may destabilise the soil and lead to soil erosion</p>	High	<ul style="list-style-type: none"> <li>• Use of berms and drainage channels to direct water away from the construction areas where necessary</li> <li>• Use existing access roads wherever possible</li> <li>• Rehabilitate disturbed areas as soon as possible after construction</li> <li>• Correct engineering design of stream and water course crossings</li> <li>• Correct engineering design of any new access roads</li> </ul>	Medium -low
	The possible presence of shallow rock (granite, granophyre & gabbro) or hardpan calcrete (within 1,5m of surface) could result in areas of difficult excavation, NHBRC class R.	Medium	<ul style="list-style-type: none"> <li>• Steep slopes (&gt;45°) and areas immediately below them should be avoided for the siting of pylons and maintenance roads wherever possible. These areas are subject to slope failure and are vulnerable to erosion.</li> </ul>	Low
	Shallow perched water table could saturate foundation soils and have a detrimental effect on bearing capacity at the substation sites.	Medium	<ul style="list-style-type: none"> <li>• Floodplains and areas in close proximity to rivers need to be avoided.</li> <li>• No pylons should be placed in or close to pans, vleis and wetlands.</li> </ul>	Low
	<p><b>Indirect impacts:</b> None identified</p>	N/A	N/A	N/A
	<p><b>Cumulative impacts:</b></p>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<i>None identified</i>			
Dust Impacts	<b>Direct impacts:</b> Construction machinery and heavy vehicles which are likely to make use of the existing farm roads to transport equipment and material to the construction site, are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads	Low	<ul style="list-style-type: none"> <li>• Continuous watering of the site should be carried out to prevent dust pollution during windy and dry conditions.</li> <li>• A continuous dust monitoring process needs to be undertaken during construction.</li> <li>• Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>• All vehicles transporting friable materials such a sand, rubble etc must be covered by a tarpaulin or wet down.</li> <li>• Construction work to be undertaken during weekdays as far as practical.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified.	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified.	N/A	N/A	N/A
Spillage of hazardous substances	<b>Direct impacts</b> Several activities can cause the spillage of hazardous substances, causing contamination of receiving environment at the construction site. These include spillages from unmanaged ablution facilities, spillages of fuels and oils, spillage of concrete and cement and runoff of contaminated cement wastewater.	Medium	<i>Store fuels and chemicals in a bunded area. Provide staff with hazardous materials training.</i>	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Fires	<b>Direct impacts</b>	Medium	Fire fighting equipment to be kept on site and serviced regularly.	Low



## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	Fires may be caused through a number of actions or reasons, such as defective equipment, cigarette butts, and spilled fuels and oils. Fires are generally the result of bad or ineffective management, or negligence.			
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impact on socio-economics	<b>Direct impacts:</b> Impact on nearby residential areas - Influx of workers in the area may raise concerns from neighbouring residents	Medium	<ul style="list-style-type: none"> <li>• All adjacent landowners must be informed of the construction processes prior to commencement of construction activities.</li> <li>• Adjacent land owners must be informed timeously of any service stoppages in their areas.</li> <li>• Notification must include possible timeframes for stoppages.</li> <li>• Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners.</li> <li>• Affected land owners must be timeously informed of any/all maintenance of the bulk water services supply which may result in service stoppages to their properties. Again this must include possible timeframes so alternatives can be provided.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on traffic and local roads	<b>Direct impacts:</b> Traffic will be congested as a result of construction activities. In addition, traffic increase can lead to road damage, erosion, accidents and even traffic delays Construction machinery and heavy vehicles are likely to generate dust which is likely to be perceptible by		<ul style="list-style-type: none"> <li>• Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00).</li> <li>• It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system.</li> <li>• Speed restriction of 20km/h must be implemented for all</li> </ul>	

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	adjacent residents. Trucks may potentially distribute dust along internal access roads.		construction vehicles. <ul style="list-style-type: none"> <li>• Implement dust suppression measures (wetting or application of soil binding compound) in all areas that will be affected by construction</li> <li>• activities and where dust will be generated</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on socio-economics:	<b>Direct impacts:</b> Economic and employment status will be impacted on due to access and road construction, building construction, paving construction and landscaping.	Medium	The construction phase will provide direct temporary employment for locals, and <ul style="list-style-type: none"> <li>• Local communities should be informed upfront and in no uncertain terms that the possibility of local employment is most unlikely so that unrealistic expectations are not created</li> <li>• Where unskilled labour is required, it should be sourced from the local communities</li> <li>• Where project activities lead to the creation of informal job opportunities such as food stalls, contractors should be encouraged to allow such activities</li> </ul>	Medium
	<b>Indirect impacts:</b> Indirect employment through demand for construction materials, and support services, as well as empowerment and skills transfer opportunities.	Medium	No mitigation measure required	Medium
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on infrastructure services	<b>Direct impacts:</b> The status of the infrastructure services may be impacted on through the establishment of the site and the construction of roads.		<b>There are no mitigation measures as the impact is positive.</b> <ul style="list-style-type: none"> <li>• The status of the infrastructure services in the surrounding area will be improved through the establishment of the site and the upgrade of roads in the area.</li> </ul>	

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• Insect the site for burst, blocked or leaking water pipe</li> <li>• During the operational phase, the sewage system must be inspected for leakages on regular basis and any leakages must be attended to immediately.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Increased soil erosion	<p>Loss of fertile topsoil will occur due to the initial vegetation clearing (for access roads to tower site); and construction earthworks may cause increased soil erosion as well as stormwater runoff.</p> <p>The area where the power line is proposed to be constructed may be undulating.</p>		<ul style="list-style-type: none"> <li>• The route deviations impacting mostly on disturbed areas should be considered</li> <li>• It is recommended that care should be taken when constructing a power line as this might result in soil erosion. If at all possible, construction activities should preferably take place during the dry winter months.</li> <li>• Stockpiles in excavated areas should not be higher than 2 m to avoid compaction and visual impacts.</li> <li>• To prevent erosion of materials stockpiled for a long period of time, the material must be retained in a bermed area.</li> <li>• Do not allow erosion to develop on a large scale before taking action.</li> <li>• Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas.</li> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• Runoff from roads must be managed to avoid erosion and pollution problems.</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed.</li> <li>• Colonisation of the disturbed areas by plants species from the</li> </ul>	

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.</p> <ul style="list-style-type: none"> <li>Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> </ul>	
Health and safety impacts	<p><b>Direct impacts:</b> Impacts/injuries to animals or humans entering the site unnoticed</p>	Medium	<ul style="list-style-type: none"> <li>The construction site and tower excavations must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area.</li> <li>No fires are allowed at or around the construction site.</li> <li>The contractor must provide gas fired stoves and heaters to the workers</li> <li>Due to the reason that the number of population in the receiving environment will increase, it is therefore important to develop and implement Health Awareness programs to reduce the wide spread of diseases such as HIV/AIDS as well as educating people on issues related to safe sex.</li> <li>Since the majority of the households in the area lack formal basic infrastructures for sanitation (flush toilets), it will also be advisable to provide mobile toilets to avoid contamination of land and surface water (e.g. rivers, springs and wetlands), as well as providing safe drinking water to reduce the consumption of contaminated water from streams/rivers or boreholes.</li> </ul>	Low
	Workforce and construction sites	Medium	<ul style="list-style-type: none"> <li>Ensure all construction vehicles and machinery is under the control of competent personnel.</li> <li>Limit access to the construction site to the workforce only.</li> <li>Safety clothes and equipment must be worn at all times.</li> <li>Comply with the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).</li> </ul>	Low
	<b>Indirect impacts:</b>	N/A	N/A	N/A

BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Waste Management impacts	<b>Direct impacts:</b> Improper storage and disposal of solid waste, littering and ablution facilities	Medium	<ul style="list-style-type: none"> <li>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins.</li> <li>• All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained.</li> <li>• Separate waste skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO.</li> <li>• Littering will not be permitted on the site and general housekeeping will be enforced.</li> <li>• General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.</li> <li>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li> <li>• Adequate toilet facilities must be provided for all staff members as standard construction practice.</li> <li>• Chemical toilets must be placed within the construction camp and not in close proximity to the river. The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.</li> <li>• No wastes may remain on the construction site for more than two weeks</li> <li>• Keep the properties neat and litter free at all times and maintain the landscaped areas.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on ground water	<b>Direct impacts:</b> Groundwater contamination - Hydrocarbon leakages from plant vehicles and poor management of sources of hydrocarbon leakages has a potential to pollute underground and surrounding resources	Medium	<ul style="list-style-type: none"> <li>Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants.</li> <li>All cement mixing must occur on impervious surfaces and within controlled bermed areas.</li> <li>Oil residue must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site.</li> <li>Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the place of construction.</li> <li>No materials may be discharged from the construction camps.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Noise Impacts	<b>Direct impacts:</b> Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents as well as along internal access roads.	Medium	<ul style="list-style-type: none"> <li>The contractor must ensure that noise levels remain within acceptable limits</li> <li>Construction activities must be limited to normal working hours and according to municipal bylaws, i.e. working hours must be limited to weekdays as far as possible.</li> <li>If construction is required on the weekend; permission from adjacent landowners will be required prior to construction.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on stormwater	<b>Direct impacts:</b> The accumulation of stormwater.	Medium	<ul style="list-style-type: none"> <li>No stockpiles or construction materials may be stored or placed within any drainage line that may be in close proximity of storm</li> </ul>	Low

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			water drains. <ul style="list-style-type: none"> <li>• No stockpiles or construction materials may be stored or placed in close proximity to storm water drains.</li> <li>• The storm water system especially discharge points must be inspected and damaged areas must be repaired if required.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
OPERATIONAL PHASE IMPACTS				
Impacts on Flora	<b>Direct impacts:</b> Positive impact by removing alien invasive plants, although care must be taken not to remove all vegetation at once, especially within the rainy season (could result in soil erosion and soil loss).	Medium	<ul style="list-style-type: none"> <li>• Rehabilitate all areas cleared of invasive plants as soon as practically possible, utilising specified methods and species.</li> <li>• Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. Monitoring should continue for at least two years after construction is complete.</li> <li>• Follow manufacturer's instruction when using chemical methods, especially in terms of quantities, time of application etc.</li> <li>• Ensure that only properly trained people handle and make use of chemicals.</li> <li>• Dispose of the eradicated plant material at an approved solid waste disposal site.</li> <li>• Only indigenous plant species naturally occurring in the area should be used during the rehabilitation of the areas affected by the construction activities.</li> </ul>	Low
	Destruction of natural vegetation	Medium	<ul style="list-style-type: none"> <li>• After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a</li> </ul>	Low

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<p>condition as close as possible to that prior to construction.</p> <ul style="list-style-type: none"> <li>• Ensure that maintenance work does not take place haphazardly, but according to a fixed plan.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.</li> <li>• Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> <li>• Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.</li> <li>• Plants that are not interfering with the operation of the powerline during the maintenance must not be disturbed.</li> </ul>	
	<p><b>Indirect impacts:</b> Bush encroachment</p>	Medium	<ul style="list-style-type: none"> <li>• Use grass sods that were removed prior to construction to rehabilitate the construction footprints. Sods must not be stored for lengthy periods and should not be stacked on top of each other or on top of grazed and moist grasslands. The sods should preferably be removed during the winter months and replanted by springtime latest.</li> <li>• Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.</li> <li>• Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.</li> <li>• Remove excess <i>Acacia karoo</i>, <i>A melifera</i> and <i>Dichrostachys cinerea</i> seedlings along with any alien vegetation.</li> <li>• Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition,</li> </ul>	Low



## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			mitigation measures as set out for the construction phase should be adhered to.	
	<b>Cumulative impacts:</b>	N/A	N/A	N/A
Impacts on Wetland	<b>Direct impacts:</b> Maintenance and clearing of the servitude through the use of chemicals may also pollute nearby watercourses if not properly undertaken.	Medium	Care must be taken all the time when applying the herbicide to remove aliens	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Disruption to local residents	<b>Direct impacts:</b> Power cuts during maintenance may disrupt local people	Medium	Inform residents if planned power cuts at least 15 -30 days before implementing	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Fauna	<b>Direct impacts:</b> Faunal Disturbance - During the operational phase the mammal assemblages will be minimally disturbed by the functioning of the powerline and occasionally disturbed should maintenance of the infrastructure be required. It is not expected for the composition of fauna species to alter and the distribution and abundance of the faunal species should revert to that similar of the composition before	Medium	<ul style="list-style-type: none"> <li>• Areas not impacted by the associated infrastructure, as well as those considered to have a high biological diversity, should be maintained in their present states;</li> <li>• Maintenance activities should be limited to daylight hours and vehicles should remain on the designated roads at all times; and</li> <li>• The road network should be maintained as gravel tracks that allow for faunal dispersal.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	construction. This impact will be on a limited basis dependent on the need for maintenance.			
	<b>Indirect impacts:</b> Local Business growth	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on Socioeconomic	<b>Direct impacts:</b>	N/A	N/A	N/A
	<b>Indirect impacts:</b> Local Business growth	Medium	No mitigation measures are recommended.	Medium
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Visual Impacts	<b>Direct Impacts:</b> <b>Aesthetic quality and sense of place:</b> The operation of the new power lines and substations will cause intrusions on observers' views especially on those residents living within 1 km of the servitude. This will result from the introduction of new elements that are uncharacteristic of the study area and will alter the baseline condition to the visual environment. The industrial character of the power lines and substation will contrast severely with the rural and natural character of the landscape. These will be representative of anthropogenic alternations to a study area that is expected to impact on the value of the visual environment.	Low to High	<ul style="list-style-type: none"> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of weeds that may become an unsightly feature.</li> <li>• Maintenance of the servitude in terms of clearing up littering and dumped refuse is highly recommended. This must be done on a routine basis in order to keep the servitude neat and maintain a visually unobtrusive condition;</li> <li>• All lighting, especially perimeter security lighting at the substations must be shielded to minimise light spillage and pollution. No direct light sources must be seen from outside the site;</li> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may become an unsightly feature; and</li> <li>• Screen planting that was specifically established to minimise the intrusiveness of the power line or substation must be maintained and dead or sick plants replaced for a determinate period after construction.</li> </ul>	Low to High

BASIC ASSESSMENT REPORT

<b>5. PROPOSED TSWAING SUBSTATION AND ALTERNATIVE TSWAING SUBSTATION</b>				
<b>Activity</b>	<b>Impact summary</b>	<b>Significance rating of impacts: (without mitigation)</b>	<b>Proposed mitigation</b>	<b>Significance rating of impacts after mitigation:</b>
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Soil erosion	<b>Direct impacts:</b> <b>Storm water runoff may cause soil erosion from the tower foundations</b>	Medium	<ul style="list-style-type: none"> <li>• Regularly inspect all storm water channels</li> <li>• Provide soil conservation measures in areas of susceptible erosion around the tower foundations</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
<b>CONSTRUCTION PHASE</b>				
Impacts on Flora	<ul style="list-style-type: none"> <li><b>Clearing of vegetation will cause permanent damage to Floral (protected floral species identified along the route) during construction n</b></li> </ul>	High	<ul style="list-style-type: none"> <li>Endemic species along the path are to be evaluated and transplanted prior to clearing, and returned to their original site once the powerline has been laid</li> <li>Selecting a route which will avoid protected species:</li> <li>The identified protect plants should either be moved or protected during operations by marking with a barrier tape.</li> <li>Route the line around the wetland</li> <li>Minimal disturbance is to be tolerated near the wetland areas;</li> <li>Only surface clearing is to take place and root systems are to be left intact to enable regrowth;</li> <li>Controlling of alien vegetation after the removal of existing vegetation; and</li> <li>Rehabilitation of areas where soils have been compacted, once construction has been completed;</li> </ul>	Moderate
Impacts on Fauna	<ul style="list-style-type: none"> <li>Installation of the underground cable will cause permanent damage to faunal species i.e. Faunal ( Beetles, amphibians, reptiles and bats)</li> <li>Destruction of habitat and a food source through the clearing of vegetation;</li> <li>Disturbance of animals through the increased noise and human activities in the area leading to the possible driving of animals away from</li> </ul>	High	<ul style="list-style-type: none"> <li>Minimisation of disturbance of surrounding indigenous vegetation and construction footprint;</li> <li>Responsible environmental management including minimisation of noise;</li> <li>Prevention of construction and maintenance personnel from setting snares to capture animals;</li> <li>Prevention of runaway fires.</li> </ul>	

## BASIC ASSESSMENT REPORT

6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<ul style="list-style-type: none"> <li>the area; and</li> <li>Wildlife may be purposely killed by migrant workers</li> </ul>			
Impacts on wetlands	<ul style="list-style-type: none"> <li>Permanent/irreparable damage in areas where the underground cable will transect wetlands, rivers, wetlands, swamps and bogs</li> <li>Pollution of wetlands from hydrocarbon spillages, concrete spills, siltation and sedimentation</li> </ul>	HIGH	<ul style="list-style-type: none"> <li>Avoid wetland areas when planning underground cables as these may suffer severe or irreparable harm</li> <li>Route the line around the wetland</li> <li>Minimal disturbance is to be tolerated near the wetland areas;</li> <li>Store fuels and chemicals in a bunded area. Provide staff with hazardous materials training.</li> </ul>	High
Economic impacts	<ul style="list-style-type: none"> <li>The main reason why underground cables are not used as widely as overhead lines is the high initial costs</li> <li>The repair times for underground cables are many times greater than for overhead lines. Repairing underground cables is also a far more complex procedure.</li> </ul>	High	<ul style="list-style-type: none"> <li>Only use when crossing rivers and wetlands where overhead lines are not suitable and when technical challenges are encountered</li> </ul>	Moderate
Heritage Impacts	<ul style="list-style-type: none"> <li>Potential impacts of existing heritage will occur where the underground cable will cross features of heritage significance</li> </ul>		<ul style="list-style-type: none"> <li>Avoid areas of archaeological significance</li> <li>Any potential heritage features uncovered during the construction activities should be reported to and investigated by a professional Archaeologist</li> </ul>	
Visual Impacts	Visual impacts from underground cabling is minimal, visual impacts may results from associated activities e.g.	Medium	<ul style="list-style-type: none"> <li>Locate construction camps and stock yards in the least visible areas or locate it on areas that are already disturbed such as agricultural fields for example; The screening capacity of the site</li> </ul>	Low

## BASIC ASSESSMENT REPORT

6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	trenching, digging, construction camps, littering etc.		<p>can be temporarily enhanced through the erection of a 3 m high shade cloth fence around the construction camp and substation site during construction. The colour of the shade cloth should be similar to that of the adjacent vegetation, i.e. a light brown or khaki green;</p> <ul style="list-style-type: none"> <li>• Keep the construction camp and construction area neat and tidy at all times. Remove any waste products from the site or contain it in an enclosed area out of sight from viewers;</li> <li>• Establish limits of disturbances during construction through the demarcating of the construction areas to prevent unnecessary damage to vegetation;</li> <li>• Keep to existing road infrastructure as far as possible to minimise the physical damage to vegetation in the power line servitude; and</li> <li>• Implement rehabilitation of disturbed areas as soon as possible to limit the duration of exposed surfaces.</li> <li>• Minimise unsightly cut- and fill areas by stepping the substation building platform and thereby lowering the structure by as much as possible;</li> <li>• Shape the cut and fill embankments by rounding the edges and giving it a more natural appearance if space permits. Alternatively, embankments must be stabilised preferably through planting (unlikely to be an option inside the substation boundary fence due to safety consideration) to cover up any exposed soil and to restrict erosion;</li> <li>• Establish screening planting along the sides of the substations that front towards the communities. Alternatively it should be relocated to a site that has a natural screening capacity;</li> <li>• Signage should be simple and unobtrusive and not protrude above the skyline when</li> <li>• viewed from any direction; and</li> <li>• A definite effort should be made to reduce the height and scale of the substations, if at all possible.</li> </ul>	

## BASIC ASSESSMENT REPORT

6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Geotechnical Impacts	<b>Direct impacts:</b> The possible presence of shallow rock (granite, granophyre & gabbro) or hardpan calcrete (within 1,5m of surface) could result in areas of difficult excavation, NHBRC class R.	Medium	<ul style="list-style-type: none"> <li>Steep slopes (&gt;45°) and areas immediately below them should be avoided for the siting of pylons and maintenance roads wherever possible. These areas are subject to slope failure and are vulnerable to erosion.</li> </ul>	Low
	Shallow perched water table could saturate foundation soils and have a detrimental effect on bearing capacity at the substation sites.	Medium	<ul style="list-style-type: none"> <li>Floodplains and areas in close proximity to rivers need to be avoided.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified			
Dust Impacts	<b>Direct impacts:</b> Construction machinery and heavy vehicles which are likely to make use of the existing farm roads to transport equipment and material to the construction site, are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads	Low	<ul style="list-style-type: none"> <li>Continuous watering of the site should be carried out to prevent dust pollution during windy and dry conditions.</li> <li>A continuous dust monitoring process needs to be undertaken during construction.</li> <li>Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>All vehicles transporting friable materials such a sand, rubble etc must be covered by a tarpaulin or wet down.</li> <li>Construction work to be undertaken during weekdays as far as practical.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

### 6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	<b>Indirect impacts:</b> None identified.	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified.	N/A	N/A	N/A
Spillage of hazardous substances	<b>Direct impacts</b> Several activities can cause the spillage of hazardous substances, causing contamination of receiving environment at the construction site. These include spillages from unmanaged ablution facilities, spillages of fuels and oils, spillage of concrete and cement and runoff of contaminated cement wastewater.	Medium	<i>Store fuels and chemicals in a bunded area. Provide staff with hazardous materials training.</i>	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Fires	<b>Direct impacts</b> Fires may be caused through a number of actions or reasons, such as defective equipment, cigarette butts, and spilled fuels and oils. Fires are generally the result of bad or ineffective management, or negligence.	Medium	Fire fighting equipment to be kept on site and serviced regularly.	Low
	<b>Indirect impacts</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts</b> None identified	N/A	N/A	N/A
Impact on socio-economics	<b>Direct impacts:</b> Impact on nearby residential areas - Influx of workers in the area may raise	Medium	<ul style="list-style-type: none"> <li>• All adjacent landowners must be informed of the construction processes prior to commencement of construction activities.</li> <li>• Adjacent land owners must be informed timeously of any service</li> </ul>	Low



## BASIC ASSESSMENT REPORT

### 6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	concerns from neighbouring residents		stoppages in their areas. <ul style="list-style-type: none"> <li>• Notification must include possible timeframes for stoppages.</li> <li>• Consequences of such stoppages must be clearly indicated to all surrounding/affected land owners.</li> <li>• Affected land owners must be timeously informed of any/all maintenance of the bulk water services supply which may result in service stoppages to their properties. Again this must include possible timeframes so alternatives can be provided.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on traffic and local roads	<b>Direct impacts:</b> Traffic will be congested as a result of construction activities. In addition, traffic increase can lead to road damage, erosion, accidents and even traffic delays Construction machinery and heavy vehicles are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads.		<ul style="list-style-type: none"> <li>• Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00).</li> <li>• It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system.</li> <li>• Speed restriction of 20km/h must be implemented for all construction vehicles.</li> <li>• Implement dust suppression measures (wetting or application of soil binding compound) in all areas that will be affected by construction</li> <li>• activities and where dust will be generated</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on socio-economics:	<b>Direct impacts:</b> Economic and employment status will be impacted on due to access and road	Low	The construction phase will provide direct temporary employment for locals, and <ul style="list-style-type: none"> <li>• Local communities should be informed upfront and in no</li> </ul>	

## BASIC ASSESSMENT REPORT

6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	construction, building construction, paving construction and landscaping.		<p>uncertain terms that the possibility of local employment is most unlikely so that unrealistic expectations are not created</p> <ul style="list-style-type: none"> <li>• Where unskilled labour is required, it should be sourced from the local communities</li> <li>• Where project activities lead to the creation of informal job opportunities such as food stalls, contractors should be encouraged to allow such activities</li> </ul>	
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impact on infrastructure services and land use	<p><b>Direct impacts:</b></p> <ul style="list-style-type: none"> <li>• After the installation is done there are only minor limitations regarding land use. Agriculture and farming are generally possible on top of the cable trench</li> </ul> <p>The status of the infrastructure services may be impacted on through the establishment of the site and the construction of roads and installation.</p>	High Positive	<p><b>There are no mitigation measures as the impact is positive.</b></p> <ul style="list-style-type: none"> <li>• The status of the infrastructure services in the surrounding area will be improved through the establishment of the site and the upgrade of roads in the area.</li> <li>• Insect the site for burst, blocked or leaking water pipe</li> <li>• During the operational phase, the sewage system must be inspected for leakages on regular basis and any leakages must be attended to immediately.</li> </ul>	Low Positive
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Increased soil erosion	Loss of fertile topsoil will occur due to the initial vegetation clearing (for access roads and substation site); and construction earthworks may cause increased soil erosion as well as stormwater runoff.	Medium	<ul style="list-style-type: none"> <li>• It is recommended that care should be taken when constructing substations as this might result in soil erosion. If at all possible, construction activities should preferably take place during the dry winter months.</li> <li>• Stockpiles in excavated areas should not be higher than 2 m to avoid compaction and visual impacts.</li> </ul>	Low

## BASIC ASSESSMENT REPORT

6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			<ul style="list-style-type: none"> <li>• To prevent erosion of materials stockpiled for a long period of time, the material must be retained in a bermed area.</li> <li>• Do not allow erosion to develop on a large scale before taking action.</li> <li>• Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas.</li> <li>• Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction / earthworks in that area (DWAF, 2005).</li> <li>• Remove only the vegetation where essential for construction and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed.</li> <li>• Colonisation of the disturbed areas by plants species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.</li> <li>• Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

### 6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines

Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
Health and safety impacts	<b>Direct impacts:</b> Impacts/injuries to animals or humans entering the site unnoticed	Medium	<ul style="list-style-type: none"> <li>• The construction site and excavations must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area.</li> <li>• No fires are allowed at or around the construction site.</li> <li>• The contractor must provide gas fired stoves and heaters to the workers</li> <li>• Due to the reason that the number of population in the receiving environment will increase, it is therefore important to develop and implement Health Awareness programs to reduce the wide spread of diseases such as HIV/AIDS as well as educating people on issues related to safe sex.</li> <li>• Since the majority of the households in the area lack formal basic infrastructures for sanitation (flush toilets), it will also be advisable to provide mobile toilets to avoid contamination of land and surface water (e.g. rivers, springs and wetlands), as well as providing safe drinking water to reduce the consumption of contaminated water from streams/rivers or boreholes.</li> </ul>	Low
	Workforce and construction sites	Medium	<ul style="list-style-type: none"> <li>• Ensure all construction vehicles and machinery is under the control of competent personnel.</li> <li>• Limit access to the construction site to the workforce only.</li> <li>• Safety clothes and equipment must be worn at all times.</li> <li>• Comply with the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Waste Management impacts	<b>Direct impacts:</b> Improper storage and disposal of solid waste, littering and ablution facilities	Medium	<ul style="list-style-type: none"> <li>• All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins. All solid waste must then be disposed of at the nearest</li> </ul>	Low

BASIC ASSESSMENT REPORT

6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
			licensed landfill and safe disposal certificates obtained. Separate waste skips/ bins for the different waste streams must be available on site. The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO. <ul style="list-style-type: none"> <li>• Littering will not be permitted on the site and general housekeeping will be enforced. General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.</li> <li>• All excess material and rubble must be removed from the site so not to restrict the rehabilitation process.</li> <li>• Adequate toilet facilities must be provided for all staff members as standard construction practice.</li> <li>• Chemical toilets must be placed within the construction camp and not in close proximity to the river. The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.</li> <li>• No wastes may remain on the construction site for more than two weeks</li> <li>• Keep the properties neat and litter free at all times and maintain the landscaped areas.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Impacts on ground water	<b>Direct impacts:</b> Groundwater contamination - Hydrocarbon leakages from plant vehicles and poor management of sources of hydrocarbon leakages has a potential to pollute underground and	Medium	<ul style="list-style-type: none"> <li>• Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants.</li> <li>• All cement mixing must occur on impervious surfaces and within controlled bermed areas.</li> <li>• Oil residue must be treated with oil absorbent such as Drizit or</li> </ul>	Low

## BASIC ASSESSMENT REPORT

6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	surrounding resources		similar and this material removed to a licensed waste disposal site. <ul style="list-style-type: none"> <li>Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the place of construction.</li> <li>No materials may be discharged from the construction camps.</li> </ul>	
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
Noise Impacts	<b>Direct impacts:</b> Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents as well as along internal access roads.	Medium	<ul style="list-style-type: none"> <li>The contractor must ensure that noise levels remain within acceptable limits</li> <li>Construction activities must be limited to normal working hours and according to municipal bylaws, i.e. working hours must be limited to weekdays as far as possible.</li> <li>If construction is required on the weekend; permission from adjacent landowners will be required prior to construction.</li> </ul>	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
<b>OPERATIONAL PHASE IMPACTS</b>				
Disruption to local residents	<b>Direct impacts:</b> Power cuts during maintenance may disrupt local people	Medium	Inform residents if planned power cuts at least 15 -30 days before implementing	Low
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A
	<b>Indirect impacts:</b> Local Business growth	N/A	N/A	N/A
	<b>Cumulative impacts:</b>	N/A	N/A	N/A

## BASIC ASSESSMENT REPORT

6. Technology Alternatives - The use of Underground Cable vs. the Use of Overhead Powerlines				
Activity	Impact summary	Significance rating of impacts: (without mitigation)	Proposed mitigation	Significance rating of impacts after mitigation:
	None identified			
Impacts on Socioeconomic	<b>Direct impacts:</b> N/A	N/A	N/A	N/A
	<b>Indirect impacts:</b> Local Business growth	Medium	No mitigation measures are recommended.	Medium
	<b>Cumulative impacts:</b> None identified			
Visual Impacts	<b>Direct Impacts:</b> <b>Aesthetic quality and sense of place:</b> The operation of the new substations will cause intrusions on observers' views especially on those residents living within 1 km of the servitude. This will result from the introduction of new elements that are uncharacteristic of the study area and will alter the baseline condition to the visual environment. The industrial character of the power lines and substation will contrast severely with the rural and natural character of the landscape. These will be representative of anthropogenic alternations to a study area that is expected to impact on the value of the visual environment.	Low to High	<ul style="list-style-type: none"> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of weeds that may become an unsightly feature.</li> <li>• Maintenance of the servitude in terms of clearing up littering and dumped refuse is highly recommended. This must be done on a routine basis in order to keep the servitude neat and maintain a visually unobtrusive condition;</li> <li>• All lighting, especially perimeter security lighting at the substations must be shielded to minimise light spillage and pollution. No direct light sources must be seen from outside the site;</li> <li>• Previously rehabilitated areas must be monitored to prevent the infestation of alien vegetation species that may become an unsightly feature; and</li> <li>• Screen planting that was specifically established to minimise the intrusiveness of the power line or substation must be maintained and dead or sick plants replaced for a determinate period after construction.</li> </ul>	Low to High
	<b>Indirect impacts:</b> None identified	N/A	N/A	N/A
	<b>Cumulative impacts:</b> None identified	N/A	N/A	N/A

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

## BASIC ASSESSMENT REPORT

### 2. ENVIRONMENTAL IMPACT STATEMENT

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

**Alternative A (preferred alternative): Summary of specialist findings for each of the respective powerline routes (✓ depicting suitability of the site for the power line development)**

Specialists	Proposed Dinaledi Dipompong (Purple route)	Alternative Dinaledi Dipompong	Proposed Garankuwa Dipompong	Alternative Garankuwa Dipompong	Proposed Dipompong Tswaing	Alternative 1 Dipompong Tswaing	Alternative 2 Dipompong Tswaing	Preferred	Least preferred
<b>Vegetation</b>	✓	X	✓	X	✓	✓	X	Purple route Green route Pink route	- Purple route Brown route
<b>Faunal</b>	✓	X	X	X	✓	✓	X	-Purple route - Green route - Pink route	- Purple route -Brown route
<b>Avi fauna</b>	✓	✓	X	✓	✓	✓	✓	Purple route- Green route - Pink route - Purple route	Purple route -Brown route



## BASIC ASSESSMENT REPORT

<b>Wetlands</b>	√	X	√	X	√	√	√	Purple route - Green route - Pink route - Purple route	-Brown route
<b>Heritage</b>	√	X	X			X	√	Equally suitable	Equally suitable
<b>Specialists</b>	Proposed Dinaledi Dipompong (Purple route)	Alternative Dinaledi Dipompong	Proposed Garankuwa Dipompong	Alternative Garankuwa Dipompong	Proposed Dipompong Tswaing	Alternative 1 Dipompong Tswaing	Alternative 2 Dipompong Tswaing	Preferred	Least preferred
<b>Visual</b>	√	√	√	√	√	√	√	Purple route - Green route - Purple route - Brown	- Pink route - Blue route
<b>Geotechnical suitability</b>	√	√	√	√	√	- Purple route - Green route - Pink route - Purple route	√	Equally suitable	Equally suitable

Based on the preceding discussion, the specialists concluded their proposed routes and alternative assessment as follows:

The ecological specialists' assessment (flora, fauna, avifaunal and wetland) concluded that the proposed routes (Proposed Garankuwa Dipompong (Purple route), Proposed Dinaledi Dipompong (Green route), Proposed Dipompong Tswaing (Pink route) are preferred and will have the least impact on ecological systems. It is also imminent from the wetland assessment that the wetlands identified along the routes were found to be disturbed. Although the wetland vegetation has been impacted on by surrounding anthropogenic activities, it does, in its current state, create some habitat for faunal species such as frogs and avifauna species and thus will require effective application of mitigation measures. The avifaunal study preferred the proposed routes and concluded that the proposed routes will have the least impact on birds. The avifaunal specialist has also indicated that regarded the proposed route alternatives as viable options as far as potential bird impacts are concerned. The, geotechnical and heritage studies concluded that all sites would be equally suitable for the proposed development. However, mitigation measures in the EMPr (**Appendix F**) should be strictly adhered to.

It is apparent from the specialist assessments that comparatively, the proposed routes are the most feasible considering environmental and socio-economic aspects. The proposed routes are considered to have least environmental impacts due to the fact that these routes are the shortest routes compared to some of the route alternatives that are proposed. Although some sections of the proposed routes transect sensitive environments (wetlands and floral), it must be noted that these routes alignment also transect transformed residential and disturbed agricultural lands. ***It is thus a recommendation of this BA that Proposed Garankuwa Dipompong (Purple route), Proposed Dinaledi Dipompong (Green route), Proposed Dipompong Tswaing (Pink route ) be considered***

With the regard to the proposed substations (Dipompong and Tswaing) and the proposed Substation Alternatives, the proposed Dipompong and Tswaing substations are the preferred from the environmental perspective. The vegetation of the proposed and alternative substation localities comprised secondary or degraded Bushveld (highly grazed) which were classified as a low sensitivity to the proposed development. The nearest wetland condition for the proposed Dipompong substation was noted to be about 700m and the proposed Tswaing is located about 500m from a wetland. The Alternative Tswaing locality is situated within an area delineated as a wetland and thus considered less suitable. Due the ecological sensitivities identified within the Tswaing and Dipompong substation alternatives, ***it was therefore a recommendation of the Ecological specialist (fauna, flora and wetland) that proposed Dipompong and Tswaing substations be considered for the construction of the substations.***

Based on the summary of environmental observations presented, it is a conclusion of this BA that the proposed project will have moderate to low impacts on the bio-physical environment, all of which can be fully mitigated and managed, and where possible prevented. There will be impacts on wetlands, vegetation and associated habitats, soil, dust and noise generated by the earth moving equipment, waste generated by the influx of contractor's and establishment of the contractor's camps. Clearing of

vegetation is anticipated for the purposes of access road construction. Applying for a Water use licence (as the activities are located 500m from a watercourse) and fencing the site to avoid impact on the surrounding natural vegetation are some of the key mitigation measures that must be implemented during construction.

**Technology Alternative: *Underground Cable vs. Overhead Powerline***

Although the impact assessment of underground power cables shows to have very limited/no biophysical impacts, however, undergrounding is more expensive, since the cost of burying cables at transmission voltages is several times greater than overhead power lines, and the life-cycle cost of an underground power cable is two to four times the cost of an overhead power line. Whereas finding and repairing overhead wire breaks can be accomplished in hours, underground repairs can take days or weeks, and for this reason redundant lines are run. Underground power cables, due to their proximity to earth, cannot be maintained live, whereas overhead power cables can be. Operations are more difficult since the high reactive power of underground cables produces large charging currents and so makes voltage control more difficult.

In addition The installation of underground instead of overhead lines is typically in the region of five times more expensive than overhead wires. This would also serve little purpose when ecological (vegetation, fauna, and wetland) impacts are being considered since laying of underground cables requires vegetation clearing and will transect watercourse. Underground cables are oil cooled and therefore present a significant risk of groundwater contamination. Maintenance is also very difficult on underground lines compared to overhead lines.

***From a construction and maintenance cost perspective this option is clearly the most expensive, therefore, this option is NOT preferred, and resultantly the option has been eliminated.***

**No-go alternative (compulsory)**

By not taking any action, Eskom Distribution cannot ensure firm supply into the Winterveldt area. The no-go option alternative is therefore not a feasible option to consider as this would have significant negative impacts on the economy and living environment of the region, as no actual economic growth can occur, where future planned township, as well as industrial and business developments will cause overloading on the existing transmission network/system, which will result in constant power cuts. This option is therefore ruled out because it would neither supply the projected demand for electricity nor optimise the existing infrastructure.

Although the impacts identified, such as impact on wetlands, natural vegetation as well as visual impacts, would not occur if the project did not go ahead, the socio economic benefit of the proposed project should not be disregarded. The No-Go alternative has thus been eliminated due to the fact that the identified environmental impacts can be suitably mitigated and that by not building the project, the socio-economic benefits would be lost.

## 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).

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

This BAR has provided a comprehensive assessment of the potential environmental impacts associated with the proposed Dimpopong powerline and substation project. These impacts have been identified by the EIA team (including specialists) and I&APs. The key findings of the BA are discussed in this Report. In general, the proposed development will have an impact of *low* significance provided that there is effective application of the mitigation measures proposed in this BAR and the EMPr. The majority of these impacts are easily mitigated and can be reduced to lower significance through appropriate design and mitigation measures. No unacceptably impacts of unacceptably high significance are foreseen once proper mitigation measures have been implemented. The findings of the specialists as summarised in **Section 2 (Environmental Impact Statement)** of this report indicate no significant fatal flaws and thus regard the proposed project feasible with the application of effective mitigation measures.

Accordingly and based on the specialist assessment and various environmental assessment of the conditions, it is therefore a recommendation of this Basic Assessment that the following five (5) proposed activities be granted a positive authorisation.

- ***Proposed Garankuwa Dipompong (Purple route),***
- ***Proposed Dinaledi Dipompong (Green route),***
- ***Proposed Dimpopong Tswaing (Pink route)***
- ***Proposed Tswaing Substation***
- ***Proposed Dimpopong substation***

These above mentioned powerline routes and substation locations have emerged as the preferred options from an environmental perspective. It is further recommended that the environmental authorities authorise the development subject to the following conditions:

- The draft EMPr and conditions thereto should be adhered to the EMPr be made a binding document for the contractors and managers on site. (See **Appendix G** for the EMPr).
- A walk-down of the power line route should be done to determine if the individual pole structures will have an impact on any sites, features or objects of cultural heritage significance;
- Ecology (Flora and Fauna), and Heritage Resource Specialists should conduct a site visit (i.e. ‘walk-down’) prior to commencement of the construction phase , i.e. tower placement phase, to

ensure that no flora and fauna species as well as heritage and/or cultural resources are compromised and propose relevant mitigation measures thereof;

- A large section of the proposed powerline routes as well as the proposed Dipompong substation locality are situated within a CBA 2, therefore, the proposed routes should be discussed with the North West Department of Agriculture, Conservation, Environment and Rural Development and the route be aligned as much as possible within already transformed vegetation.
- **For the extent of the rocky outcrops, it is advisable that the Garankuwa to Dipompong route be placed north of the existing powerline past the outcrops, where it will be the further away from the rocky outcrops.**
- **It is a recommendation of the North West Rural, Environmental, and Agricultural Development that the “two provincially protected tree species (Leadwood *Combretum Imberbe* and *Marula Sclerocarya birrea*) must not be removed. Should smaller saplings in the line if the servitude needs to be removed, the plants must be dug out and replanted about 100 m away. The individual Leadwood trees at the Tswaing substation will not be removed and the substation will have to be planned around these as if they were immovable structures in the landscape.**
- No towers and access roads should be placed in any surface water resources, i.e. rivers, wetlands, etc. An authorisation from the Department of Water Affairs (DWA) would need to be obtained prior to construction if this is unavoidable.
- The applicant must apply for a Water use Licence from the Department of Water Affairs in areas where water resources are impacted (streams and wetland crossing) before commencement of construction in those areas;
- The Tolwane River, Rosespruit, Sandspruit and Soutpanspruit should be regarded as “No-Go” areas for the proposed power lines and substations, monopoles, access tracks and related activities. The 1: 100 year floodline and a 32m line from the centre of the spruit, whichever is the greatest will be regarded as “No-Go” areas. Should the applicant decide to place any structure within the wetland areas or its buffer zone or within the flood lines, a Water Use License is required from DWA according to the Water Act.
- Rehabilitation should be completed swiftly;
- Should there be a need of resettlement of land owners, it is recommended that community participation in planning and implementing the resettlement process be encouraged. In addition to Eskom’s standard process for the resettlement of affected households, the Negotiator should be able to communicate with the affected parties in their local language or the language that they can understand and/or prefer or be accompanied by an interpreter during the negotiation process with Amakhosi, Farmers and other affected I&APs; and
- The location of construction camps should be carefully considered and sensitive areas be avoided.
- For the substations, a due diligence contamination assessment must be done and the following parameters must be tested: PCBs, VOCs, and SVOCs
- A suitability qualified Environmental Control Officer must be appointed and be present on site at all times through different phases of the project to ensure compliance with the conditions of the Environmental Authorisation and the Final Environmental Management Programme

Is an EMP attached?

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

## BASIC ASSESSMENT REPORT

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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.

Refer to Appendix H for details of the EAP.

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

Refer to Appendix G for the specialist's declaration of interest.

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

Nkhensani Khandlhela  
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: Examples of proposed powerline infrastructures that may be used for the project

Appendix D: Specialist reports (including terms of reference)

Appendices D1 (Geotechnical report),

D2 (Vegetation Assessment),

D3 (Heritage report),

D4 (Faunal Assessment),

D5 (Wetland Assessment),

D6 (General Rehabilitation and Monitoring Plan),

D7 (Visual Assessment), and

D8 (Avifauna Assessment)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information