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**A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR  
ESKOM'S PROPOSED NEW 132kV POWER LINE BETWEEN THE  
LEMARA SUBSTATION AND THE OHRIGSTAD SUBSTATION NEAR  
HOEDSPRUIT AND OHRIGSTAD IN THE MPUMALANGA PROVINCE**

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## EXECUTIVE SUMMARY

A Phase I Heritage Impact Assessment (HIA) study as required in terms of Section 38 of the National Heritage Resources Act (No 25 of 1999) was done for Eskom's proposed Lemara-Leboeng-Ohrigstad Project (construction of a proposed 132kV power line between the Lemara and proposed new Leboeng Substation and between the Leboeng and Ohrigstad Substations) in the Mpumalanga Province. The construction of the proposed new 132kV power lines and the proposed new Leboeng Substation is hereafter referred to as the Eskom Project whilst the footprint for the proposed new development (power line and substation) is referred to as the Eskom Project Area.

The construction of the proposed 132kV power line between the Lemara Substation and the Ohrigstad Substation is part of an Eskom Project which involves different developmental components which are addressed in several heritage impact assessment studies, namely:

- The construction of the proposed 132kV power line between the Lemara Substation and the proposed new Leboeng Substation
- The construction of the proposed 132kV power line between the Leboeng Substation and the Ohrigstad Substation.
- The construction of a proposed 22kV power line between the Phiring Substation and the Blyde River Canyon.
- The construction of the 132kV power line between the Lemara Substation and the Olifants River.

The aims with this Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources ('national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur in the Eskom Project Area and, if so to determine the significance of these heritage resources.
- To make recommendations regarding the mitigation and management of significant heritage resources that may be affected by the Eskom Project.

The Phase I HIA for the Eskom Project Area revealed none of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) along the power line corridors or on the stands for the proposed new Leboeng Substation.

### **The significance of the heritage resources**

Heritage resources which do occur in the larger Eskom Project Area were briefly described and their coordinates are provided. However, the significance of these heritage resources was not indicated neither was any mitigation measures described as these heritage resources will not be affected by the Eskom Project.

### **The Lemara-Leboeng power lines**

Limited alternatives are available for the construction of the 132kV Lemara-Leboeng- Ohrigstad power line, particularly in the northern part of the Eskom Project Area where the proposed 132kV Lemara-Leboeng power line crosses the Drakensberg. Due to the complicated topographical nature of the Drakensberg Escarpment in the north Alternative 01 and Alternative 02 is near identical. Both these alternatives seem suitable from a heritage point of view for the construction of the 132kV Lemara-Leboeng power line.

Access to Alternative 01 and Alternative 02 were not possible where these alternatives cross the Drakensberg as they run up steep slopes and across high altitudes of the mountain where no access roads exist. However, the aerial survey indicated what was presumed, namely that occupation of these high altitudes probably did not occur in the past. Although some contemporary high-laying agricultural fields were observed towards the southern part of the Eskom Project Area these fields were established on the lower foothills of the western Drakensberg where they are associated with villages which are straggled along the foot slopes of these hills. This settlement pattern where villages along valley floors are associated with agricultural fields on higher altitudes of the Drakensberg may perhaps have expressions in the past. However, such a historical settlement pattern could not be observed during the aerial survey.

### **Mitigation measures**

Both Alternative 01 and Alternative 02 for the proposed 132kV Lemara-Leboeng power line seem to be suitable for construction considered from a heritage point of view. It is recommended that the chosen alternative be surveyed by an archaeologist by means of a walk-through of the power line corridor (where this is possible) and that the pylon positions be inspected after the final alignment of the power line and the pylons positions have been established, *prior* to the construction of the power line.

### **The Leboeng-Ohrigstad power lines**

The southern part of the Eskom Project Area - where Alternative 01 and Alternative 02 for the 132kV Leboeng-Ohrigstad power line crosses the western Drakensberg - becomes more open

and accessible particularly along the selected route for Alternative 01. In contrast, Alternative 02 follows the high eastern slopes of the Drakensberg in the south and in the centre where the survey was restricted to the use of a helicopter. The most northern stretch for Alternative 02 which runs from Kgautswane to the proposed Leboeng Substation crosses open and in part flat country. This stretch is suitable from a heritage point of view for the construction of the Leboeng-Ohrigstad power line. However, the inaccessibility of the southern stretch of Alternative 02 reduces its preference as a viable alternative as a result of the technical difficulties and constraints which are associated with this alternative. The steep slopes which Alternative 02 follows which could not be surveyed were also not suitable for human use or occupation.

### **Mitigation measures**

Alternative 01 for the proposed 132kV power line between the Leboeng Substation and the Ohrigstad Substation mainly follows open areas (except where it runs through the Heuningskrans Valley and across some of the western foothills of the Drakensberg). This alternative is recommended to be used for the construction of the new power line as it does not affect any of the heritage resources identified in the larger Eskom Project Area. Alternative 01 has to be subjected to a walk-through study by an archaeologist in order to inspect the final alignment of the power line and the pylon the positions *prior* to the construction of the power line.

### **Leboeng Substation**

Both Alternative 01 and Alternative 02 are suitable for the construction of the proposed new Leboeng Substation.

### **Summary (recommended routes, substation site and mitigation)**

- Both Alternative 01 and Alternative 02 for the proposed 132kV Lemara-Leboeng power line are recommended for the construction of the power line. Both Alternatives (01 and 02) which are near identical must be subjected to a walk-through study when the final alignment for this power line and the pylon positions has been determined, *prior* to commencement with the construction of the new power line.
- Both Alternative 01 and Alternative 02 for the proposed Leboeng Substation are recommended for the construction of the substation.
- Alternative 01 for the proposed Leboeng-Ohrigstad power line is recommended for the construction of the power line. This alternative must be subjected to a walk-through

study when the final alignment for this power line and the pylon positions has been determined *prior* to commencement with the construction of the new power line.

### **General**

This Phase I HIA study may have missed other heritage resources in the Eskom Project Area as heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance is exposed during the Eskom Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

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## **1 INTRODUCTION**

This document contains the report on the results of the Phase I Heritage Impact Assessment (HIA) study that was done for Eskom's proposed new 132kV power line between the Lemara Substation and the Ohrigstad Substation in the Mpumalanga Province. The proposed new electrification project is referred to as the Eskom Project whilst the footprints for the various developmental components are referred to as the Eskom Project Area.

Focused archaeological research has been conducted in the Mpumalanga Province for several decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as of the recording of rock art and historical sites in this area. The Mpumalanga Province has a rich heritage comprised of remains dating from the pre-historical and from the historical (or colonial) periods of South Africa. Pre-historical and historical remains in the Mpumalanga Province of South Africa form a record of the heritage of most groups living in South Africa today.

Various types and ranges of heritage resources that qualify as part of South Africa's 'national estate' (as outlined in the National Heritage Resources Act [No 25 of 1999]) occur in the Mpumalanga Province (see Box 1, next page).



**Box 1: Types and ranges of heritage resources (the national estate) as outlined in Section 3 of the National Heritage Resources Act, 1999 (No 25 of 1999).**

The National Heritage Resources Act (Act No 25 of 1999, Art 3) outlines the following types and ranges of heritage resources that qualify as part of the National Estate, namely:

- (a) places, buildings structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds including-
  - (i) ancestral graves;
  - (ii) royal graves and graves of traditional leaders;
  - (iii) graves of victims of conflict;(iv) graves of individuals designated by the Minister by notice in the Gazette;
  - (v) historical graves and cemeteries; and
  - (vi) other human remains which are not covered by in terms of the Human Tissues Act, 1983 (Act No 65 of 1983);
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including -
  - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
  - (ii) objects to which oral traditions are attached or which are associated with living heritage;
  - (iii) ethnographic art and objects;
  - (iv) military objects;
  - (v) objects of decorative or fine art;
  - (vi) objects of scientific or technological interest; and
  - (vii) books, records, documents, photographs, positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value ...'. These criteria are the following:

- (a) its importance in the community, or pattern of South Africa's history;
- (a) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (b) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (c) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; (h)
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- (i) sites of significance relating to the history of slavery in South Africa

## **2 AIMS WITH THIS REPORT**

Eskom intends to construct a new 132kV power line between the Lemara and the Ohrigstad Substation in the Mpumalanga Province. The Eskom Project, which includes several developmental components, may have an influence on any of the types and ranges of heritage resources which are listed in Section 3 of the National Heritage Resources Act (No 25 of 1999).

In order to comply with heritage legislation, Eskom requires knowledge of the presence, relevance and the significance of any heritage resources that may be affected by the proposed new project. Eskom needs this knowledge in order to take pro-active measures with regard to any heritage resources that may be affected, damaged or destroyed when the Eskom Project is implemented. Texture Environmental Consultants, the environmental company responsible for compiling the Environmental Impact Assessment (EIA) for the Eskom Project therefore commissioned the author to undertake a Phase I HIA study for the Eskom Project Area.

The aims with the Phase I HIA were the following:

- To establish whether any of the types and ranges of heritage resources ('national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur in the Eskom Project Area and, if so to determine the significance of these heritage resources, and
- To make recommendations regarding the mitigation and management of significant heritage resources that may be affected by the Eskom Project.

### **3 METHODOLOGY**

This Phase I HIA study was conducted by means of the following:

#### **3.1 Fieldwork survey**

The proposed new power line corridors were surveyed with a helicopter and with a vehicle (where access roads existed) whilst pedestrian surveys of certain stretches of the power line corridors were undertaken. Track pathways were recorded with a mounted GPS instrument during a helicopter flight along the proposed new power line corridors as well as in a vehicle when the proposed power line corridors were followed by road. Pedestrian surveys were conducted from the main pathway that was recorded with the GPS instrument that was mounted in the vehicle.

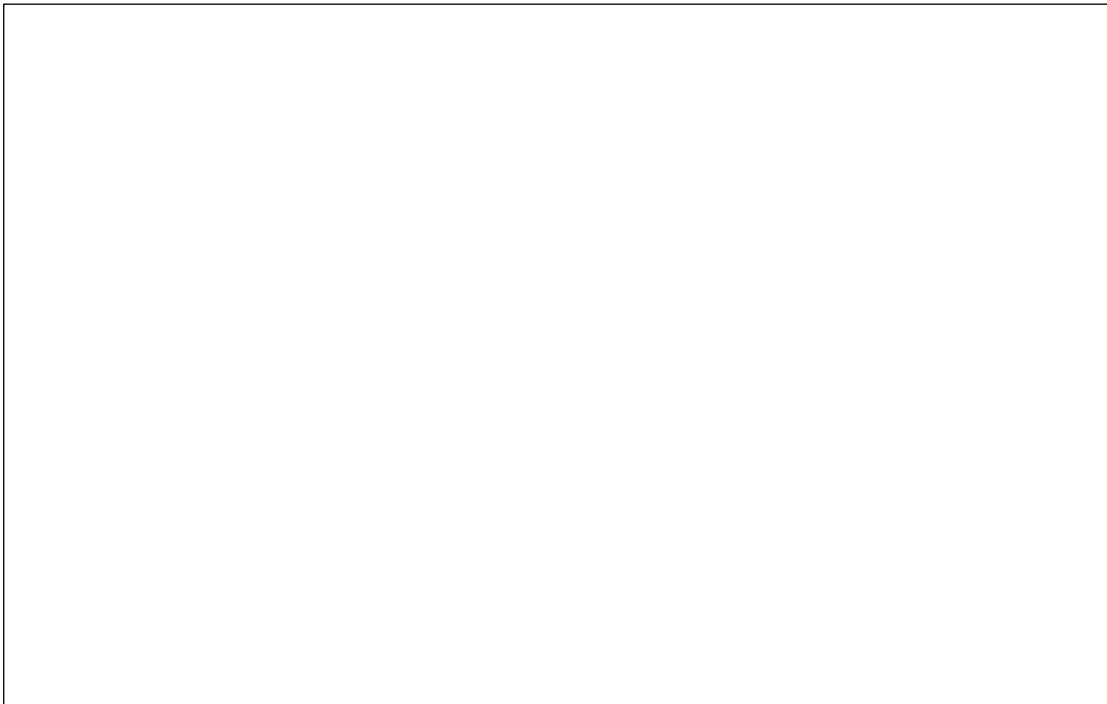
Long stretches of the power line corridors that cross the southern and western parts of the Drakensberg near Ohrigstad, or some of its foothills which stretches from the north to the south across the Project Area, were not surveyed on foot but were inspected during the survey with the helicopter. However, it must be stated that the aerial survey did not guarantee that all heritage resources which may exist along the proposed power line corridors were observed during the helicopter flight.

The power line corridors and substation sites were surveyed by the project team during the helicopter survey as well as during field surveys. The project team comprised of the following members: Eskom personnel (H. van Rensburg, K Roestrof, X Neethling); negotiators (P. Mosterd, R. Muldoon); environmental report compilers (R. Pretorius, E. Heyns); ornithologist (C. van Rooyen); botanist (W. Vlok) and the author (archaeologist) on three occasions, namely during: 20 & 21 September 2012, 10 & 11 October 2012 and on 23 & 24 January 2013. The author did additional fieldwork during two consecutive field surveys, namely on 11 & 12 March 2013 and on 19 & 20 April 2013.

Photographs which illuminate the nature and character of the power line corridors and the stands for the Leboeng Substation can be viewed in 'Part 6.1 The field survey'.



**Figures 1 & 2- Track pathway for the proposed Eskom Project registered during the helicopter survey (above). The total path way did not register as the signal was lost when flying between some of the higher peaks of the Drakensberg. A track pathway registered with a mounted GPS in a vehicle during one of several field surveys that was conducted for the Eskom Project (below).**



### **3.2 Public meetings**

Meetings between the public and the environmental consultants, negotiators, specialists and Eskom personnel were held on 16 and 17 May 2013. No concerns regarding any heritage issues were raised by the public during these meetings.

### **3.3 Databases, literature survey and maps**

Literature relating to the pre-historical and the historical unfolding of the Ohrigstad area was reviewed. This review focused primarily on the pre-history as well as the Historical Period of Lydenburg and Ohrigstad. It also provided a chronological history of the region stretching from the pre-historical to the historical period which contributes to a better understanding of the identity and meaning of heritage sites which occur in and near the Eskom Project Area.

The desktop study also involved consulting heritage data banks maintained at institutions such as the Mpumalanga Provincial Heritage Resources Agencies, the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and the national heritage resources register at the South African Heritage Resources Agency (SAHRIS) in Cape Town.

A number of Phase I HIA studies were done near the Eskom Project Area during the past decade, the results of which were published in several reports (see 'Select Bibliography', Part 8).

- Pistorius, J.C.C. 2005. A Phase I Heritage Impact Assessment (HIA) study for Xstrata Alloys Lydenburg new proposed Residue Management Facility (RMF) in the Mpumalanga Province of South Africa. Unpublished report for JMA Consulting (Pty) Ltd and Xstrata Alloys Lydenburg.
- Pistorius, J.C.C. 2005. A Heritage Impact Assessment (HIA) study for a proposed new power line between the Merensky Substation and the Burgersfort Substation in the Limpopo (Northern) Province of South Africa. Unpublished report prepared for PBA International and Eskom.

- Pistorius, J.C.C. 2009. A Phase I Heritage Impact Assessment (HIA) study for Xstrata's proposed Kuka aerial ropeway project between Steelpoort and Lydenburg in the Limpopo and Mpumalanga Provinces of South Africa. Unpublished report prepared for Golder Associates.

In addition, the Eskom Project Area was also studied by means of maps on which it appears (2430BC Strijdomtonnel, 2430DA Kgautswane, 2430CB Burgersfort, 2430BD & Hoedspruit 1: 50 000 topographical map, 2430 Pretoria 1:250 000 map & Google imagery).

### **3.4 Assumptions and limitations**

It is possible that this Phase I HIA study may have missed heritage resources in the Eskom Project Area as heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance is exposed during the Eskom Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorization (permits) from SAHRA to conduct the mitigation measures.

### **3.5 Some remarks on terminology**

Terms that may be used in this report are briefly outlined below:

- Conservation: The act of maintaining all or part of a resource (whether renewable or non-renewable) in its present condition in order to provide for its continued or future use. Conservation includes sustainable use, protection, maintenance, rehabilitation, restoration and enhancement of the natural and cultural environment.

- Cultural resource management: A process that consists of a range of interventions and provides a framework for informed and value-based decision-making. It integrates professional, technical and administrative functions and interventions that impact on cultural resources. Activities include planning, policy development, monitoring and assessment, auditing, implementation, maintenance, communication, and many others. All these activities are (or will be) based on sound research.
- Cultural resources: A broad, generic term covering any physical, natural and spiritual properties and features adapted, used and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practice, belief or social interaction. They can be, but are not necessarily identified with defined locations.
- Heritage resources: The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.
- In-Situ Conservation: The conservation and maintenance of ecosystems, natural habitats and cultural resources in their natural and original surroundings.
- Iron Age: Refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16<sup>th</sup> century and the 19<sup>th</sup> century and can therefore include the Historical Period.
- Maintenance: Keeping something in good health or repair.
- Pre-historical: Refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the Project Area, to the first appearance or use of 'modern' Western writing brought to the Eastern Highveld by the first Colonists who settled here from the 1840's onwards.

- Preservation: Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource.
- Recent past: Refers to the 20<sup>th</sup> century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, in the near future, qualify as heritage resources.
- Protected area: A geographically defined area designated and managed to achieve specific conservation objectives. Protected areas are dedicated primarily to the protection and enjoyment of natural or cultural heritage, to the maintenance of biodiversity, and to the maintenance of life-support systems. Various types of protected areas occur in South Africa.
- Reconstruction: Re-erecting a structure on its original site using original components.
- Replication: The act or process of reproducing by new construction the exact form and detail of a vanished building, structure, object, or a part thereof, as it appeared at a specific period.
- Restoration: Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components.
- Stone Age: Refers to the prehistoric past, although Late Stone Age peoples lived in South Africa well into the Historical Period. The Stone Age is divided into an Earlier Stone Age (3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 200 years ago).
- Sustainability: The ability of an activity to continue indefinitely, at current and projected levels, without depleting social, financial, physical and other resources required to produce the expected benefits.
- Translocation: Dismantling a structure and re-erecting it on a new site using original components.
- Project Area: refers to the area (footprint) where the developer wants to focus its development activities (refer to Figure 3).
- Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types and ranges of heritage resources in



any given Project Area (excluding paleontological remains as these studies are done by registered and accredited palaeontologists).

- Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavations of archaeological sites; the exhumation of human remains and the relocation of graveyards, etc. Phase II work involve permitting processes, require the input of different specialists and the co-operation and approval of SAHRA.

## **4 THE ESKOM PROJECT AREA**

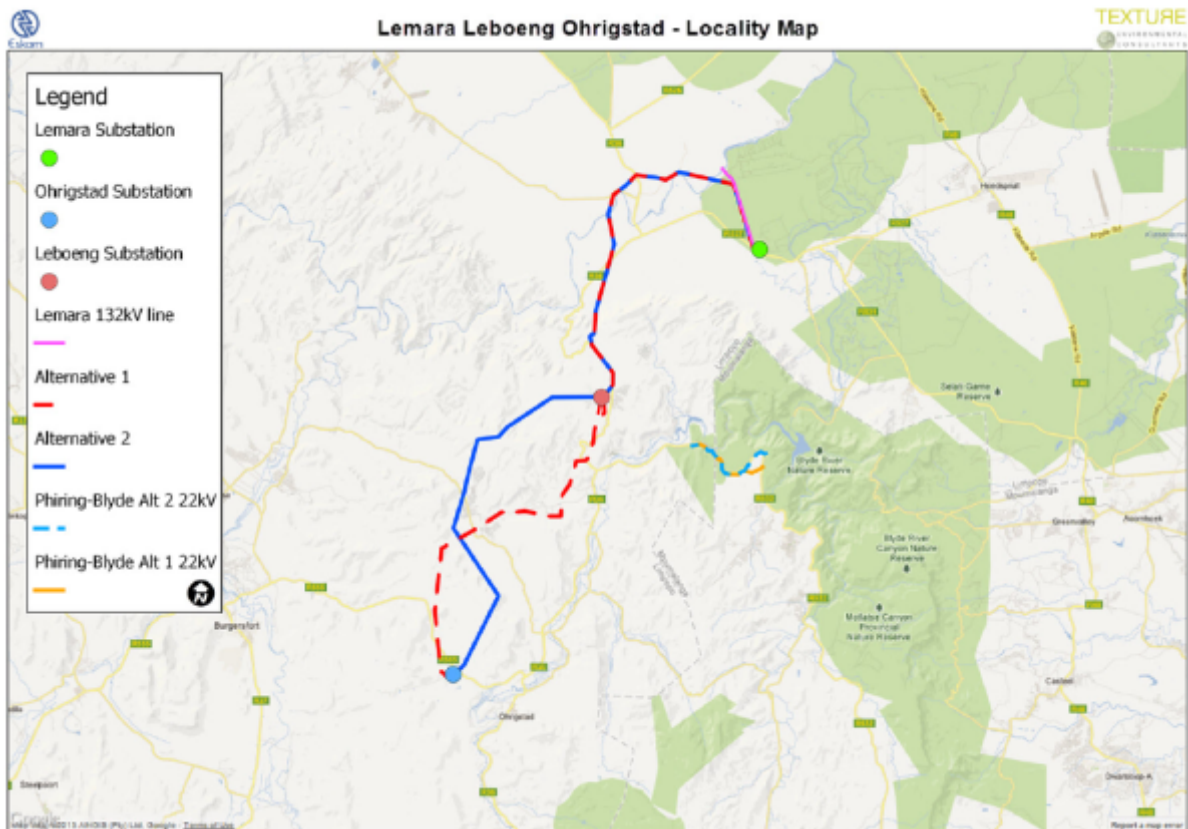
### **4.1 Location**

The Eskom Project Area is part of the Great Escarpment which is known for its magnificent mountain scenery and panoramic views which include the Mpumalanga part of the Drakensberg, forests, the brilliant colours of flowering shrubs, river gorges, waterfalls especially around Sabie, Graskop and Pelgrimsrest and the Blyde River Canyon. Apart from its scenic landscapes the fertile Great Escarpment with its abundant natural resources was home to humans from the Stone Age, throughout the Iron Age and during the Historical Period.

The Eskom Project Area stretches from the Lemara Substation near Hoedspruit north of the Drakensberg mountain range across the Olifants River and then across the high northern peaks of this mountain range at Manutsa, where the Abel Erasmus Pass (R36) runs through a tunnel in this mountain range, approximately forty kilometres to the north of Ohrigstad.

From the northern extremes of the mountain range the Eskom Project Area runs to the south following a swath of land which incorporates the western part of the Drakensberg mountain where villages such as Tswenyane, Ga Maraba, Makgwareng, Magalane, Maketla and Kgautswane are straggled along the lower slopes of foothills of the Drakensberg and on the valley floors between some of the mountains in this range.

Prominent landmarks and beacons in the Eskom Project Area include amongst others the Blyde River Valley to the east, the Echo Caves in the centre and the Abel Erasmus Pass in the north which with several holiday resorts in the area are all popular tourist destinations (2430BC Strijdomtonnel, 2430DA Kgautswane, 2430CB Burgersfort, 2430BD & Hoedspruit 1: 50 000 topographical maps; 2430 Pelgrimsrest 1:250 000 map & Google imagery).



**Figure 3- Regional map for the Eskom Project Area involving the 132kV Lemara-Leboeng-Ohrigstad power line along the northern and western Drakensberg Escarpment in the Mpumalanga Province (above).**

#### **4.2 The nature of the Eskom Project Area**

The Project Area incorporates part of the northern and western Drakensberg Mountains and therefore some of the towering peaks and scenic landscapes which are associated with this mountain range. Human settlements are scattered from the north to the south along the Project Area with the younger and current Ohrigstad which was established in 1923 along the R36, more or less in the middle of the Project Area.

Agriculture and afforestation have the biggest impact on the area with the former the most notable in the Project Area. Ohrigstad and other villages were laid out along the well-watered valley of the present day Ohrigstad River, a tributary of the Olifants River. The main crops of the area are citrus fruit, tobacco and wheat currently grown under irrigation from the Ohrigstad Dam. These agricultural activities occupy most of the

valley's floor on both sides of the Ohrigstad River which flows from the higher Drakensberg plateau northwards cutting through the Drakensberg in order to join the Olifants River north of the mountain.

Afforestation occurred after the discovery of gold in the Transvaal Republic in the 1880's due to the huge demand for timber which was used in mines, as sleepers, building material for houses, firewood and as wagon building material. Mining houses established their own short term *Eucalyptus* (Blue gum) plantations and processing industries which led to a long and successful history of afforestation by various national forestry departments.

The nature and characteristics of the Eskom Project Area is illuminated in Figures A to G (see 'Part 6.1 The heritage field survey') in this report.

#### **4.3 The nature of the Eskom Project**

The key development components of the proposed Eskom Project are outlined from the Lemara Substation to the proposed Leboeng Substation and from the proposed Leboeng Substation to the Ohrigstad Substation, namely:

##### From the Lemara Substation to the proposed Leboeng Substation

- The construction of the proposed 132kV power line between the Lemara Substation and the proposed Leboeng Substation. Two options are available for this new 132kV power line, namely:
  1. The preferred (Alternative 01) power line route which runs from the existing Lemara Substation north of the Drakensberg to the proposed new Leboeng Substation near Kgautswane further to the south. This alternative will be approximately 69km long.
  2. The alternative power line route (Alternative 02) which also runs from the existing Lemara Substation north of the Drakensberg to the proposed new Leboeng Substation near Kgautswane further to the south. Alternative 02 closely follows the preferred route and only has one minor deviation from Alternative 01. This alternative is also approximately 69km long.

- The construction of the proposed new Leboeng Substation on the farm Nooitgedacht 237KT. Two options are proposed for the substation, namely:
  1. Alternative 01 which is located to the north of Alternative 02. It is situated next to a school and a dirt road and to the west of the R36 and the village of Leboeng.
  2. Alternative 02 which is located further to the south of Alternative 01 and which is wedged between the R36 (east) and a kopje (west).

#### From the Leboeng Substation to the Ohrigstad Substation

- The construction of the proposed 132kV power line between the proposed new Leboeng Substation and the Ohrigstad Substation. Two options are proposed for this new 132kV power line, namely:
  1. The preferred (Alternative 01) power line route which runs from the proposed Leboeng Substation near Kgautswane to the Ohrigstad Substation in the south. This alternative follows an easterly route which is generally less mountainous than Alternative 02. This alternative will be approximately 69km long.
  2. The alternative power line route (Alternative 02) runs from the proposed Leboeng Substation near Kgautswane to the Ohrigstad Substation in the south. This alternative follows a westerly route which incorporates more mountainous parts than Alternative 01. This alternative is also approximately 69km long.

The preferred and alternative power line routes between the Lemara Substation and the Ohrigstad Substation as well as the preferred and alternative options for the Leboeng Substation are referred to as the Eskom Project whilst the footprint for the proposed power line routes and substation are referred to as the Eskom Project Area.

## **5 CONTEXTUALISING THE PROJECT AREA**

Apart from its scenic landscapes the Great Escarpment was home to humans from the Stone Age, through the Iron Age and during the Historical Period. The following brief overview of pre-historical, historical, cultural and economic evidence will help to contextualise the larger region and the Eskom Project Area.

### **5.1 Stone Age sites**

Stone Age sites are marked by stone artefacts that are found scattered on the surface of the earth or as parts of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age (ESA) (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (the period from 22 000 years ago to 200 years ago).

Dongas and eroded areas at Maleoskop near Groblersdal is one of only a few places in Mpumalanga where ESA Olduwan and Acheulian artefacts have been recorded. Evidence for the MSA has been excavated at the Bushman Rock Shelter near Ohrigstad. This cave was repeatedly visited over a prolonged period. The oldest layers date back to 40 000 years BP and the youngest to 27 000BP (Esterhuysen & Smith 2007).

LSA occupation of the Mpumalanga Province also has been researched at Bushman Rock Shelter where it dates back 12 000BP to 9 000BP and at Höningnestkrans near Badfontein where a LSA site dates back to 4 870BP to 200BP (Esterhuysen & Smith 2007).

The LSA is also associated with rock paintings and engravings which were done by San hunter-gatherers, Khoi Khoi herders and EIA farmers (Maggs 1983, 2008). Approximately 400 rock art sites are distributed throughout Mpumalanga, notably in the northern and eastern regions at places such as Emalahleni (Witbank) (4), Lydenburg (2), White River and the southern Kruger National Park (76), Nelspruit and

the Nsikazi District (250). The Ermelo area holds eight rock paintings (Smith & Zubieta 2007).

The rock art of the Mpumalanga Province can be divided into San rock art which is the most wide spread, herder or Khoe Khoe paintings (thin scattering from the Limpopo Valley) through the Lydenburg district into the Nelspruit area) and localised late white farmer paintings. Farmer paintings can be divided into Sotho-Tswana finger paintings and Nguni engravings (Only 20 engravings occur at Boomplaats, north-west of Lydenburg). Farmer paintings are more localised than San or herder paintings and were mainly used by the painters for instructional purposes. A rock engraving site with numerous engravings ranging from geometrical motifs to different figures have been recorded near Lydenburg (Maggs 1983; Smith & Zubieta 2007).

## **5.2 Iron Age remains**

The Iron Age is associated with the first Bantu-Negroid agro-pastoralists who lived in semi-permanent villages and who practised metal working during the last two millennia. The Iron Age is usually divided into the Early Iron Age (EIA) (covers the 1<sup>st</sup> millennium AD) and the Later Iron Age (LIA) (covers the first 880 years of the 2<sup>nd</sup> millennium AD).

Iron Age research along the Drakensberg Escarpment can be divided into two periods, namely the first phase which started with EIA research after the discovery of the Lydenburg Heads near the Sterkspruit in the 1960's. Other sites belonging to other phases of the Iron Age were found and excavated hereafter. However, archaeological research on the Escarpment has been restricted to work which has been carried out within a 30km radius from Lydenburg.

The Lydenburg Valley was occupied by EIA communities who also lived elsewhere in the Mpumalanga, Limpopo, KwaZulu-Natal and the North-West Provinces of South Africa during the 6<sup>th</sup> to the 9<sup>th</sup> centuries AD. The EIA site near Lydenburg which has produced the 'Lydenburg masks' has aroused wide academic interest due to these unique and enigmatic objects (Whitelaw 1996).

Based on ceramic typology, stratigraphy, and radio-carbon dates two cultural sequences consisting of four successive phases have been established for the EIA Drakensberg Escarpment near Lydenburg, namely (Evers 1977, 1980, 1981 & 1982):

- The Lydenburg Phase (Tradition) has been recognised as the first phase of the Iron Age. This phase dates between AD500 to 800. Five sites are associated with Lydenburg pottery namely the 'Head Site' (2530AB4), Doornkop (2530AB5), Plaston (2531AC1), Langdraai (2530AB24) and Klipspruit (2530AD17). These sites are all located on lower valley slopes in interfluvial situations at the confluence of two streams. Sites are large and measures between 7 to 15 hectares.
- Sites belonging to the Klingbeil Phase (Tradition) appear to have a similar location and distribution than those of the Lydenburg Phase. These sites include Langdraai and Doornkop which were re-occupied while at least two others similar sites occur in the Klingbeil Nature Reserve. A Klingbeil Tradition site also occurs near Boomplaas (2530AB19) where it is situated close to a prehistoric copper mine. The Klingbeil Phase has not been firmly dated but represents a continuum of the Lydenburg Tradition sites.
- In the Lydenburg area the Eiland Phase is poorly known. It represents the third phase of the local Iron Age but is still undated. It should fall in the range AD900-1400.
- The fourth or Marateng Phase of the Iron Age is associated with the stone walled sites of the Lydenburg area. These settlements comprise complexes of stone walled sites consisting of three basic units, namely homesteads, terraces and cattle tracks. Settlement location favours lower foot slopes of mountains and spur ends. Two stone walled settlement types can be distinguished, namely simple and more complex settlement types.

In Pedi oral tradition the LIA people (Marateng Phase of the Iron Age) who lived near Ohrigstad and Lydenburg were called Bakoni. The Bakoni originated from south-east Swaziland and moved westwards across the Drakensberg Escarpment to settle at Mašašane - north-west of Polokwane during AD1730, a date which is not accepted by all researchers. However, some of these Koni moved south close to the Apies



River around AD1790-1800 whilst numerous other fragments - which hived off from the main body – also moved onto the Highveld and into Sekhukhuneland (Collett 1979, 1983; Delius 1984; Maggs 2008; Makhura 2007; Delius & Schoeman 2008).

The Bakoni were raided early in Pedi history under Chief Moukangoe and later became under Pedi rule during the reign of Thulare at the turn of the 18<sup>th</sup> century. One of Thulare's sons was placed in charge of the Koni near Ohrigstad.

The Pedi west of the Steelpoort River and the Bakoni were devastated by Mzilikazi in about 1826. The Pedi retreated into caves and other refuges in the Leolo mountain. Famine and cannibalism prevailed during these times. In the Steelpoort Valley the Pedi recovered under Sekwati but in the Lydenburg and Ohrigstad areas recovery seems to have been delayed. The end of the Iron Age in the Lydenburg area coincided with the arrival of the Ohrig-Potgieter trek in 1845 (Mönnig 1978).

### **5.3 The Historical Period**

The colonial towns closest to the Project Area include Ohrigstad and Lydenburg in the south and Hoedspruit in the north.

The village of Ohrigstad was founded in 1845 by the Voortrekker leader Andries Hendrik Potgieter and his followers. The establishment of the village occurred as a result of political and geographic reasons, namely being close to the port at Lourenco Marques.

Ohrigstad was laid out in the well-watered valley of the present day Ohrigstad River, a tributary of the Olifants River. In June 1845 the town was established with broad streets and a fort for protection. The name chosen was Andries-Ohrigstad in honour of Potgieter and the Dutch benefactor Ohrig.

The residents were tormented by malaria carrying mosquitos and stoically suffered their visitation for three years. However, in the summer of 1848-49 the number of deaths from malaria reached epidemic proportions. Potgieter and some of his followers

moved north to the Soutpansberg whilst others moved to Lydenburg. Ohrigstad was finally abandoned in 1849.

The present day village was established in 1923. The main crops of the area are citrus fruit, tobacco and wheat currently grown under irrigation from the Ohrigstad Dam. Other sites of historical interest include:

- The ruins of the original fort and abandoned village occur along the R36. On 10 October 1942 the remains of those who died from malaria and other causes during AD1845 to AD1850 were re-interred under a concrete replica of an ox wagon tilt.
- The Andries Hendrik Potgieter Memorial Hall was inaugurated in 1950 in honour of Andries Potgieter and the other founders of Ohrigstad.

Lydenburg, the 'town of suffering' is situated between the Drakensberg Escarpment and the Steenkampsberge and occupies a special place of interest in the former Transvaal Republic.

Lydenburg was founded in 1850 by a faction of Hendrik Potgieter's Voortrekker party who abandoned their first settlement at Ohrigstad, 45 km further to the north. At the time Ohrigstad was subjected to the scourge of the Lowveld, namely the ubiquitous malaria mosquito. Some of the Voortrekkers moved to the Soutpansberg further north under Potgieter's leadership while a dissident group moved south-west to establish Lydenburg.

This group of men and women laid out a village on the farms Boschhoek, Waterval and Enkeldoorn in 1849. Due to a lack of water their settlement was also abandoned and in the following year they finally settled on the farm Rietspruit, at the confluence of the Sterkspruit and Spekboom River. They called this village Lydenburg for the misfortunes that had befallen them at Ohrigstad.

The Dutch Reformed parish, the third oldest in the Transvaal Republic was founded in the same year (1850) and the first Dutch Reformed Church building north of the

Orange River was finally completed in March 1852. It also served as a school which made it the oldest school building in the former Transvaal.

Lydenburg was one of several pocket republics that were established in the Transvaal by various dissident Voortrekker leaders who differed about the political destiny of their followers. In 1856 Lydenburg seceded from the Transvaal Republic (whose capital was at Potchefstroom) and joined the Republic of Utrecht in the south-east. However, in 1860 both these little states re-joined the Transvaal Republic. Lydenburg featured prominently in the Voortrekkers' quest for a wagon route to Mozambique where they intended to establish a port free from British control.

On 6 February 1873 alluvial gold was discovered in the area by several prospectors and the Lydenburg gold fields were proclaimed three months later.

Today the principal agricultural products of the district are beef, dairy, soya beans, fruit (yellow clingstone peaches), wheat barley, maize, lucerne, tobacco and wool.

Deposits of platinum, chrome, vanadium and magnesite have been found. The gravels of the Spekboom River are still being washed for alluvial gold today (Bergh 1992; Erasmus 1995).

Other heritage resources of significance in Lydenburg include:

- The present Dutch Reformed Church was consecrated in 1894. The pulpit of the church is made of Cape teak and is a model replica of that of the mother church in Stellenbosch.
- During the Anglo Transvaal War (1880-1881) a British garrison under Lieutenant W.H. Long was stationed at Lydenburg and a small fort was built. The fort was named 'Mary' in honour of the commanding officer's wife. After the war the fort fell in dilapidation. In 1899 some of its stones were used to build a powder magazine which still stands today.
- There are two nature reserves, namely the Sterkspruit and the Gustav Klingbeil on the road east to Long Tom Pass. Apart from a treasure house of flora and

fauna the latter also contains settlements with agricultural terraces built by Iron Age people.

- Amongst exhibits in the local museum are replicas of seven terracotta heads, the so-called 'Lydenburg heads,' that were found in the Sterkspruit Valley. These objects date from the Early Iron Age (AD500-800). Six of the heads are those of humans while the seventh is some kind of animal.
- The Steenkampsberg mountain range south-west of the town is dominated by 'Die Berg'. At 2 331m above sea level it is the highest peak north of the Vaal River.

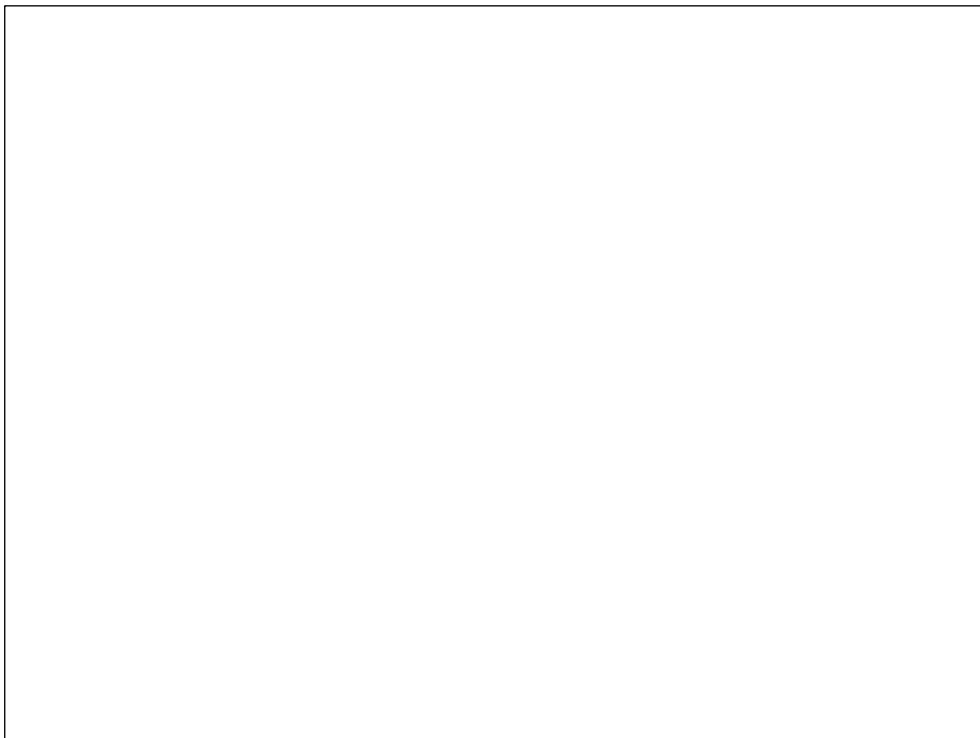
The origin of the name of the town of Hoedspruit is unknown. The reverend Frans Lion Cachet of the Dutch Reformed Church held a meeting here as early as 1865. The meeting took place on the original farm which was also known as Hoedspruit. The town was surveyed in 1869. Today the village is the junction where the sixty kilometre branch railway line from Phalaborwa joins the Kaapmuiden-Soekmekaar line.

## **6 THE PHASE I HERITAGE SURVEY**

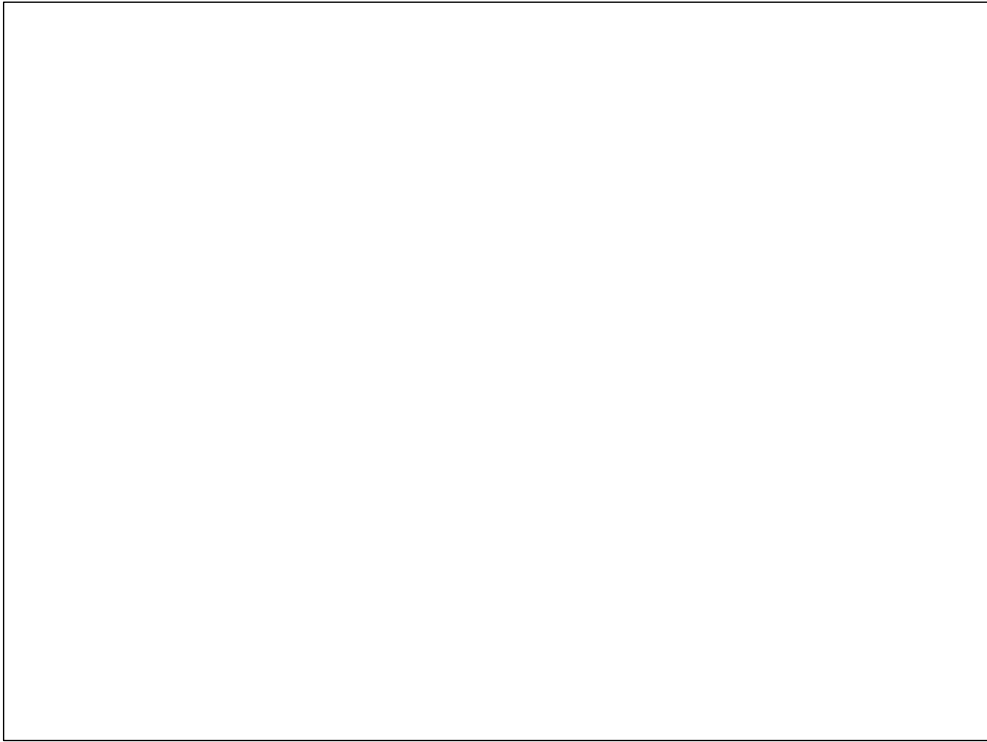
### **6.1 The heritage field survey**

The Project Area was subjected to a survey with a helicopter, a vehicle and pedestrian surveys. Geographically and topographically the Project Area can be divided in high mountainous area in the north, west and towards the south and lower laying areas in valleys between the Drakensberg and some of its foothills.

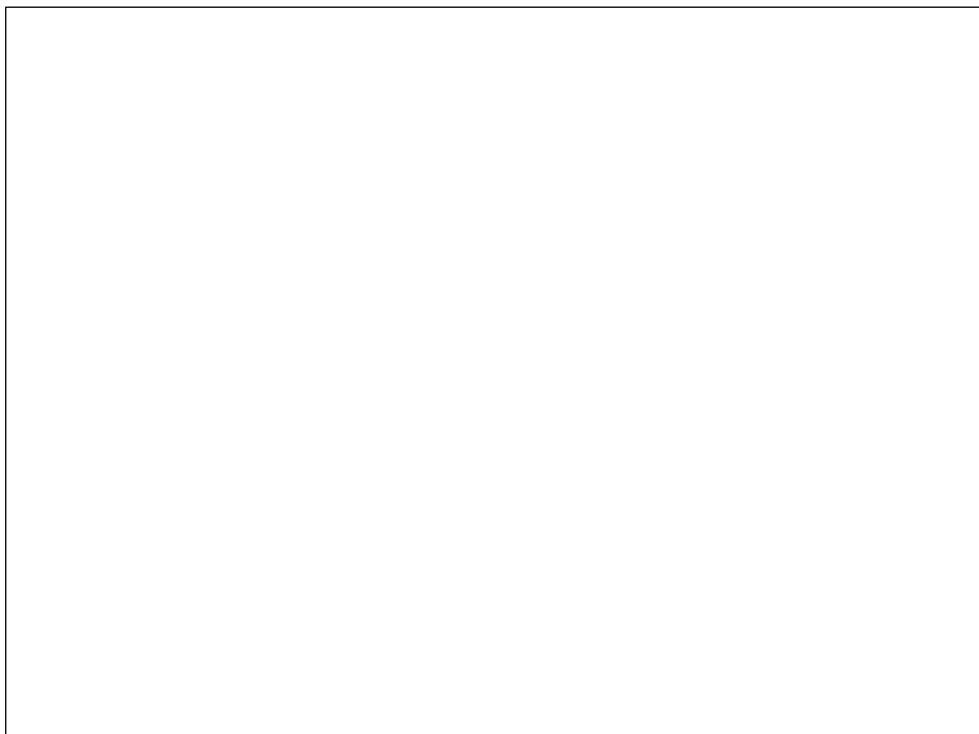
Pristine areas are mostly confined to the higher mountainous parts of the Project Area whilst flat valley bottoms are characterised by the presence of straggled villages along the lower slopes of the mountains and agricultural fields which extend from the villages down mountain slopes and along the bottoms of valleys

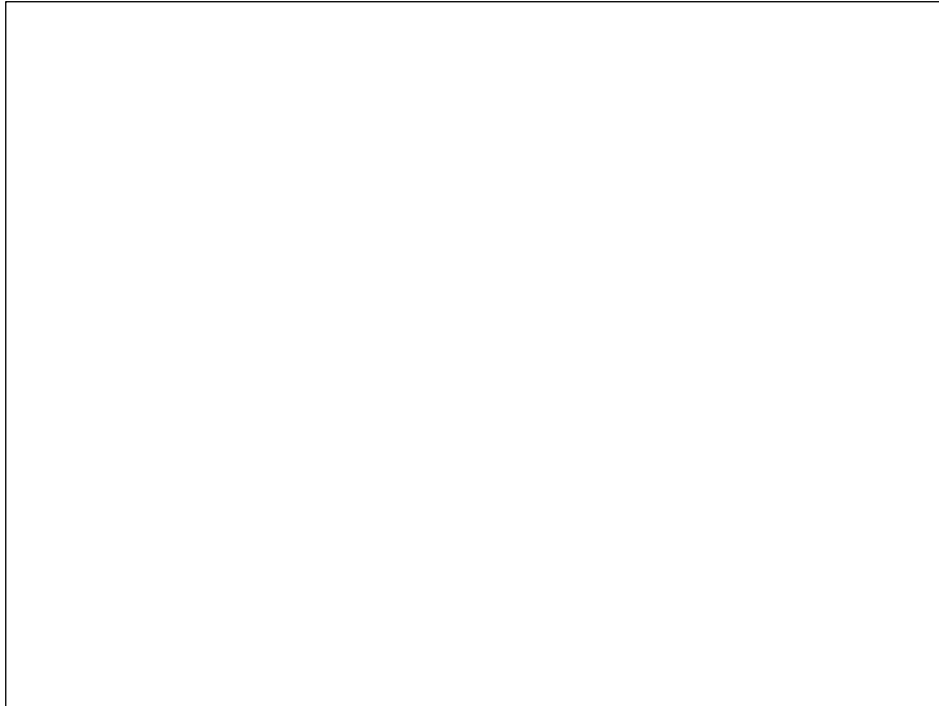


**Figure 4- The pristine eastern part of the Eskom Project Area along the Blyde River Canyon with a road winding through some of the lower foothills of the Drakensberg. The proposed 22kV Phiring-Blyde River power crosses (not dealt with in this report) this part of the Drakensberg Escarpment (above).**



**Figures 5 & 6- Flat, valley bottoms wedged between pristine mountainous areas are sought after for agricultural produce. Most of the valleys bottoms have been scarred by settlements which hug the lower foot slopes of mountains, extensive agricultural fields and other infrastructure (above and below).**





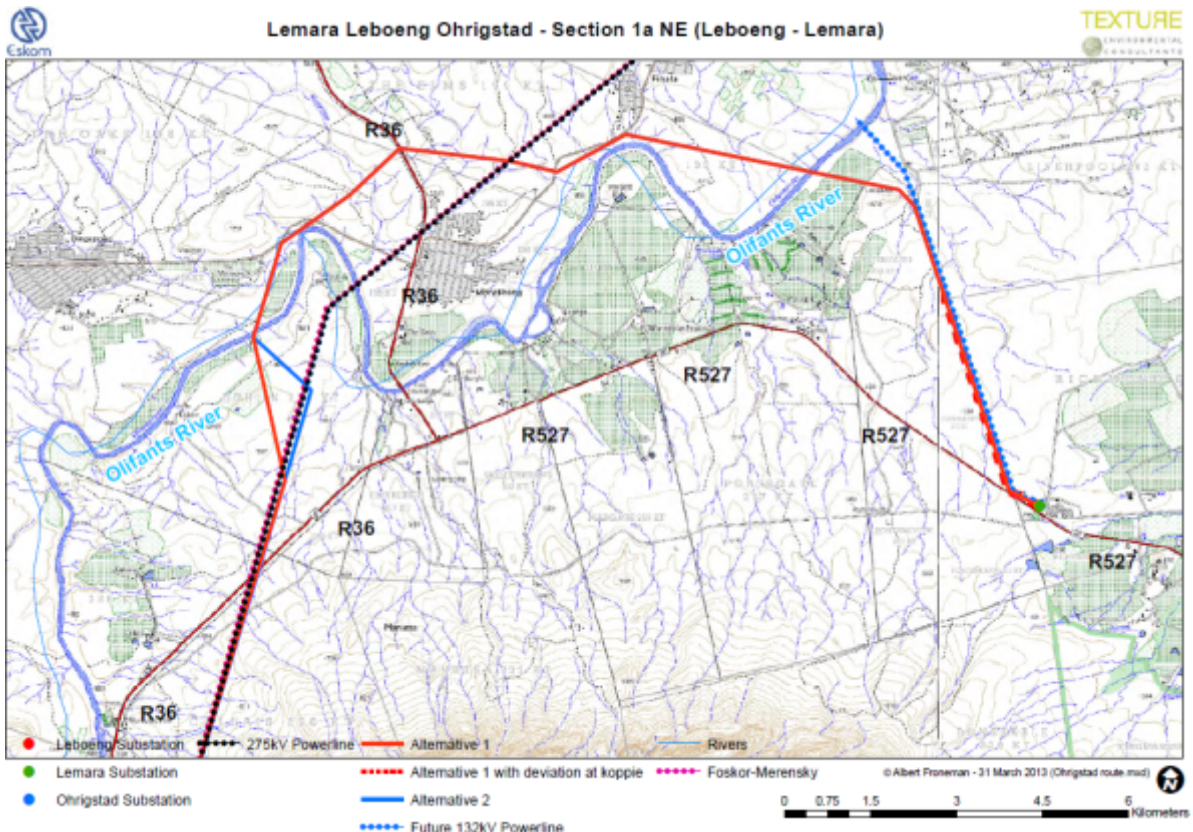
**Figure 7- The fragmented nature of the Eskom Project Area reveals untouched grass veld, agricultural fields (young and old), pristine patches with bush on flat areas and pristine mountain vegetation on foothills of the Drakensberg. Also notable in the southern part of the Eskom Project Area is the Ohrigstad-Burgersfort railway line which roughly follows the historical Voortrekker road which used to exist between these two Voortrekker towns (above).**

## **6.2 The power lines and substation**

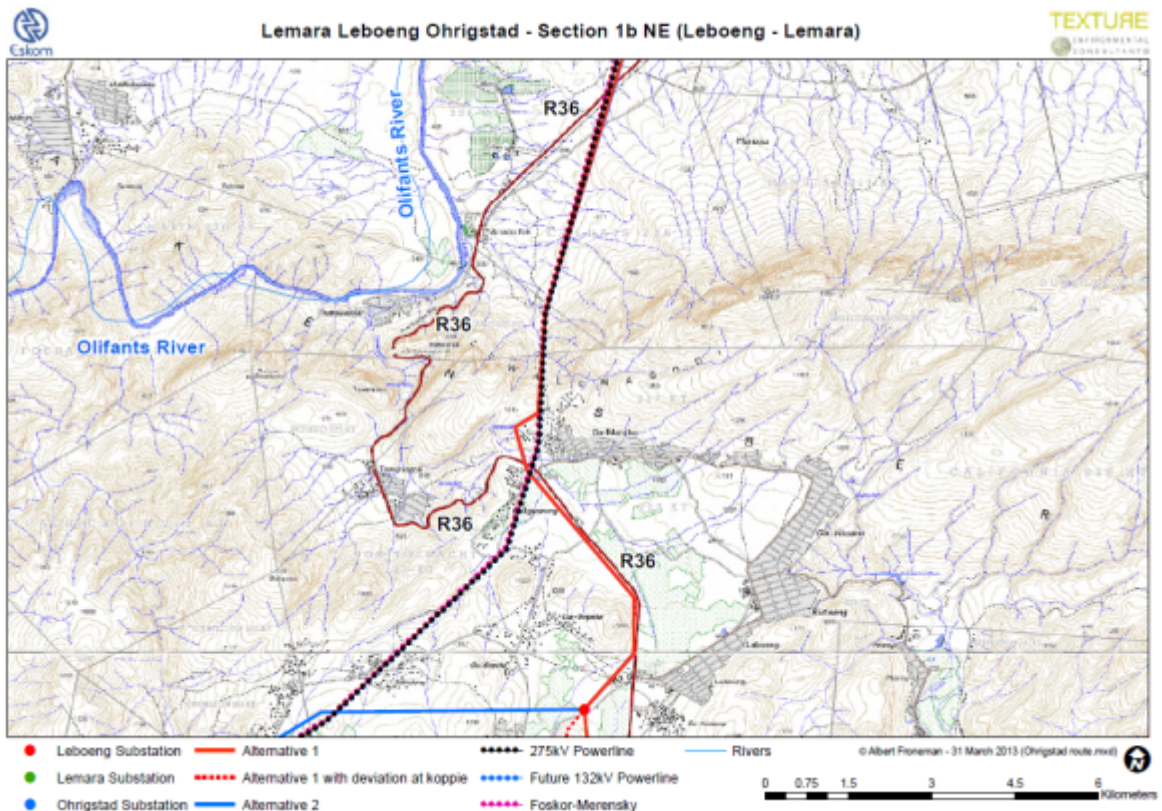
### **6.2.1 Between the Lemara Substation and proposed Leboeng Substation**

The first part of the Eskom Project comprises the construction of the 132kV Lemara-Leboeng power line (using either Alternative 01 [Preferred route] or Alternative 02) and the construction of the proposed Leboeng Substation at the preferred site (Alternative 01) or at Alternative 02.

The Phase I HIA study for this part of the Eskom project is now briefly discussed and illuminated with photographs.



Figures 8a & 8b- The Eskom Project Area between the Lemara Substation and the proposed Leboeng Substation (above and below).

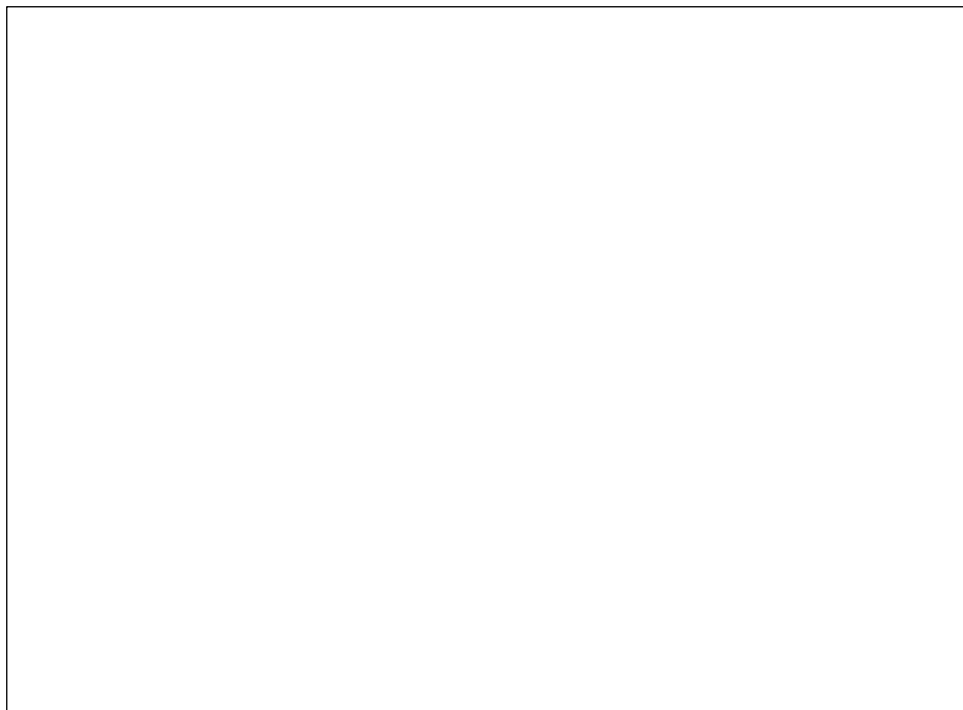




### 6.2.1.1 The Preferred route (Alternative 01) for the 132kV Lemara Leboeng power line

This power line runs along the following main stretches, namely:

- The first stretch runs from the existing Lemara Substation on Richmond 604KT north-westwards along the shoulder of the R527 (running between Ofcolaco and Hoedspruit) for approximately 500m before bending to the north-west in order to follow the shoulder of a dirt road across Richmond 604KT, Liverpool 202KT and Portsmouth 273KT.



**Figure 9- The Lemara Substation on Richmond 604KT where the proposed new 132kV Lemara-Leboeng power line commences (above).**

- The 2<sup>nd</sup> stretch of Alternative 01 turns to the west on Portsmouth 273KT and crosses the Olifants River from where it runs across the farm The Elms 199KT to the dirt road leading to the village of Finala. Stretch 02 then follows this dirt road in a south-westerly direction before bending to the west in order to run to and to cross the R36 (which runs between Tzaneen and the Ofcolaco/Hoedspruit [R527] road).



**Figure 10- Alternative 01 and 02 run across Dublin 118KT and cross the Olifants River along which banks dry land and irrigation agriculture are common (above)**

- The 3<sup>rd</sup> stretch runs from the R36 south-westwards to the banks of the Olifants River. Here it bends southwards in order to run across Dublin 118KT and again crosses the Olifants River further to the south. Stretch 03 now turns south-westwards still running across Dublin 118KT to join Eskom's existing 400kV power lines.
- The 4<sup>th</sup> stretch runs southwards following the 400kV power line and crosses the farms Calais 226KT, Anlage 225KT and Arthursrust 219KT. Whilst Eskom's 400kV power line runs through the village of Ga Maraba, Alternative 01 deviates to the west around this village and then crosses the R527 (which runs between Hoedspruit and Ohrigstad).



**Figure 11- From the Olifants River Alternative 01 and 02 heads northwards to the Drakensberg. Both alternatives ascend and cross the mountain range in order to run to the village of Ga Maraba before entering the proposed Leboeng Substation near Kgautswane (above).**

- Stretch 05 follows the southern shoulder and then the western shoulder of the R527 as the road bends to the south before Alternative 01 bends to the south-west in order to run to the proposed Leboeng Substation on Nooitgedacht 237KT.

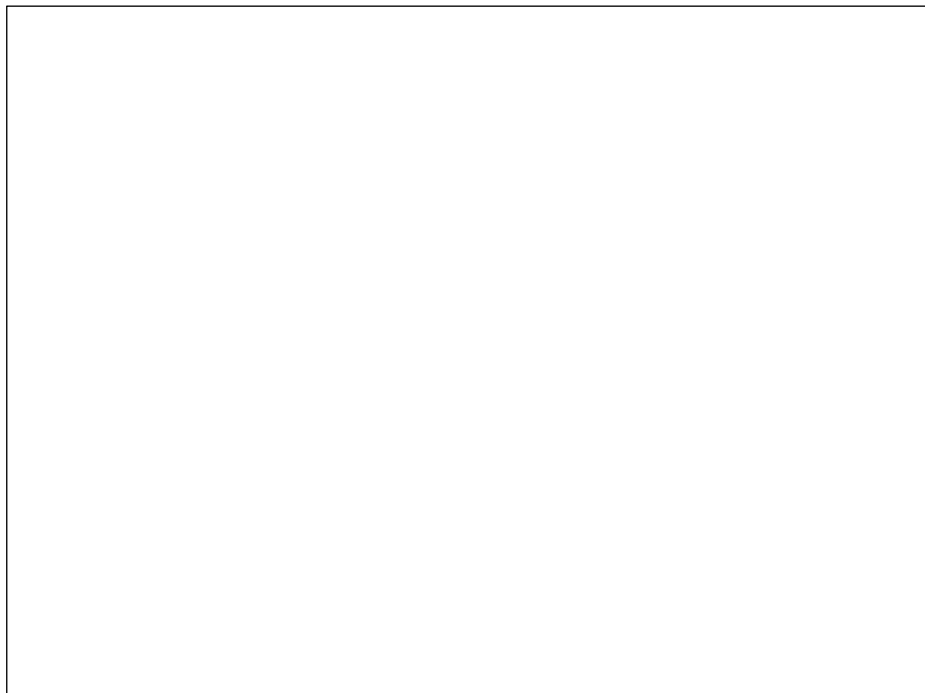
#### **6.2.1.2 Alternative route (Alternative 02) for the proposed 132kV Lemara-Leboeng power line**

This alternative for the proposed 132kV Lemara-Leboeng power line follows a near identical corridor than Alternative 01. The only difference that does occur is the following:

- On the farm Dublin 118KT Alternative 02 departs from Alternative 01 and runs directly south-eastwards from the southern banks of the Olifants River in order to join Eskom's existing 400kV power line.



**Figures 12 & 13- Alternative 01 and 02 deviates around the village of Ga Maraba (above) and then follows the western and southern shoulder of Road 527 before bending to the proposed Leboeng Substation on Nooitgedacht 237KT (below).**

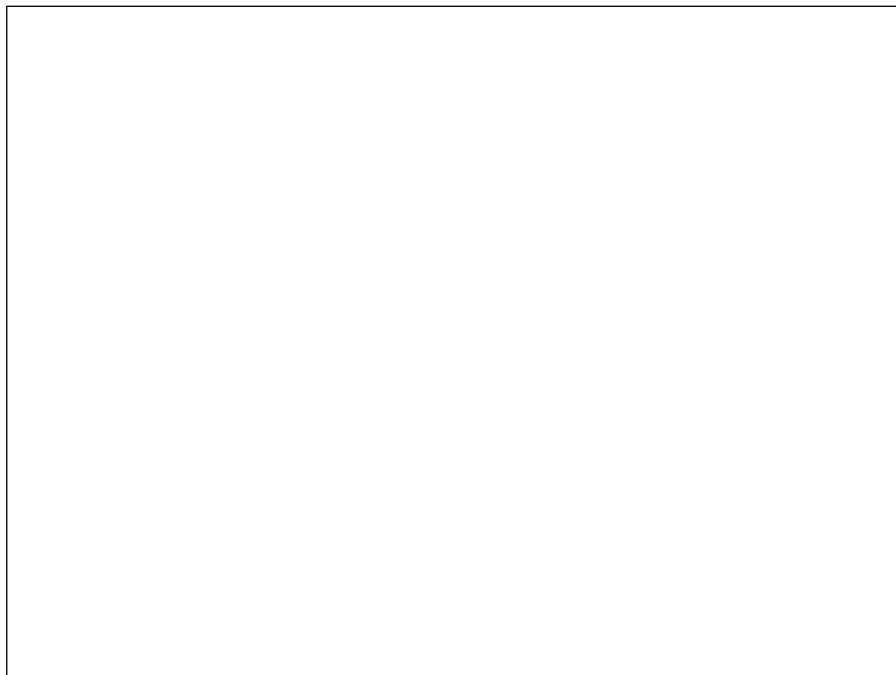


### 6.2.1.3 The proposed Leboeng Substation

Two alternatives are available for the proposed new Leboeng Substation on Nooitgedacht 227KT, namely:

#### Alternative 01

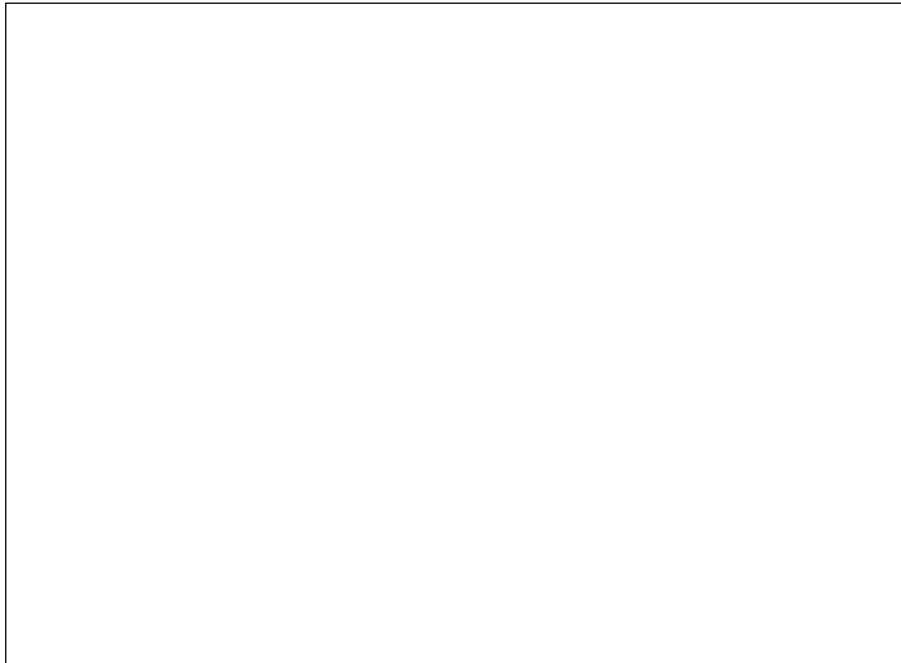
Alternative 01 is located on a flat piece of land in close proximity of a dirt road which runs to the village of Magalane. The proposed stand for the substation occurs on a piece of land next to a school building. This piece of land is one of a number of agricultural plots which has been ploughed in the past but which is not currently used for agricultural activities.



**Figure 14- Alternative 01 for the proposed Leboeng Substation viewed from the air (above). This alternative is located in close proximity of a school building and next to a dirt road that runs to the village of Magalane (foreground). This piece of land was ploughed in the past, a feature which can be observed when the site is visited on the ground (next page).**

## Alternative 02

Alternative 02 is located on a piece of land which is wedged between the R36 and a kopje. The proposed stand for the substation occurs in the midst of a number of agricultural fields which are still active.



**Figure 15- Alternative 02 for the proposed Leboeng Substation is located on a plot of land which was used with other adjacent plots for agricultural activities in the past (above).**

### **6.2.2 Between the Leboeng Substation and the Ohrigstad Substation**

The second part of the Eskom Project comprises the construction of the 132kV power line between the Leboeng Substation and the Ohrigstad Substation using either Alternative 01 [Preferred route] or Alternative 02) for the new power line.

The Phase I HIA study for this part of the Eskom project is now briefly discussed and illuminated with photographs.

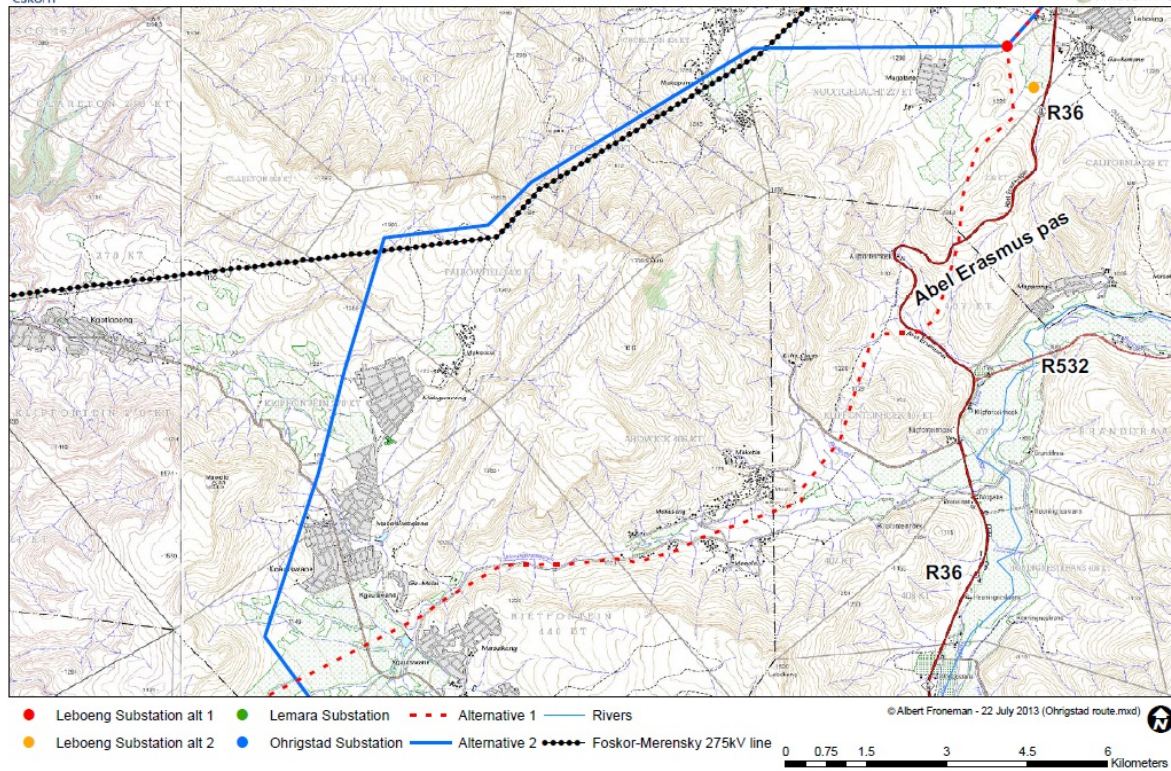
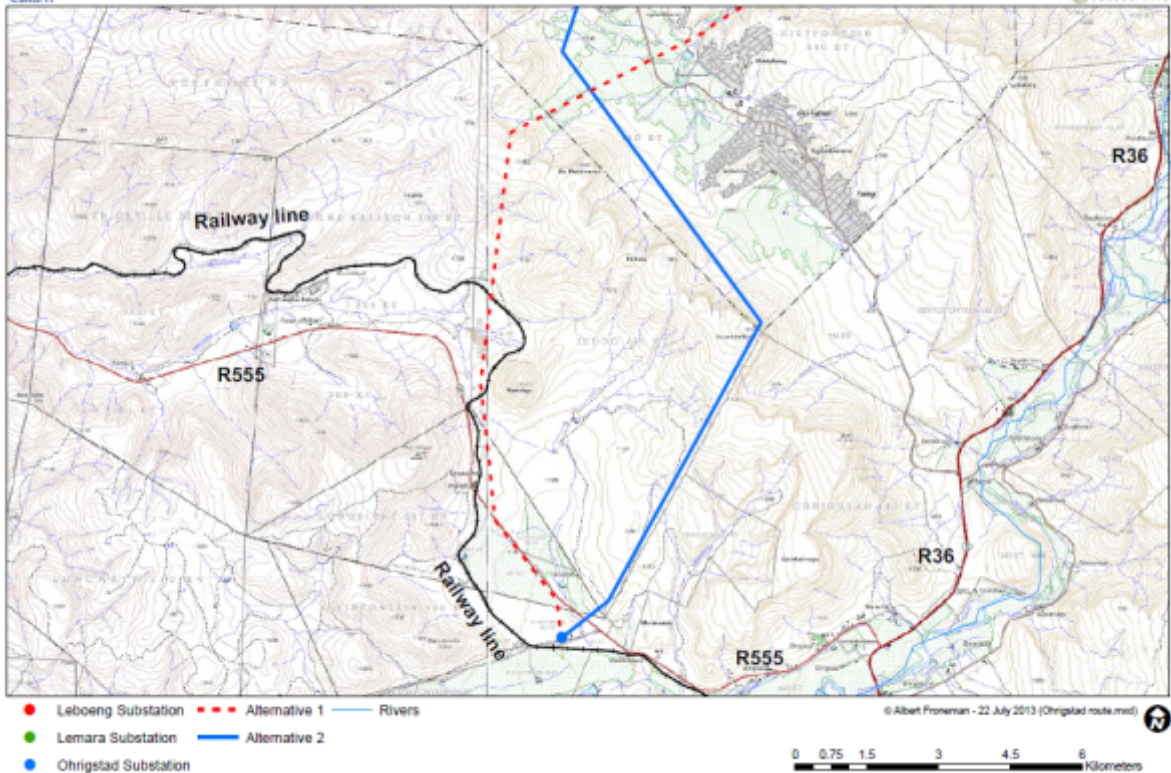


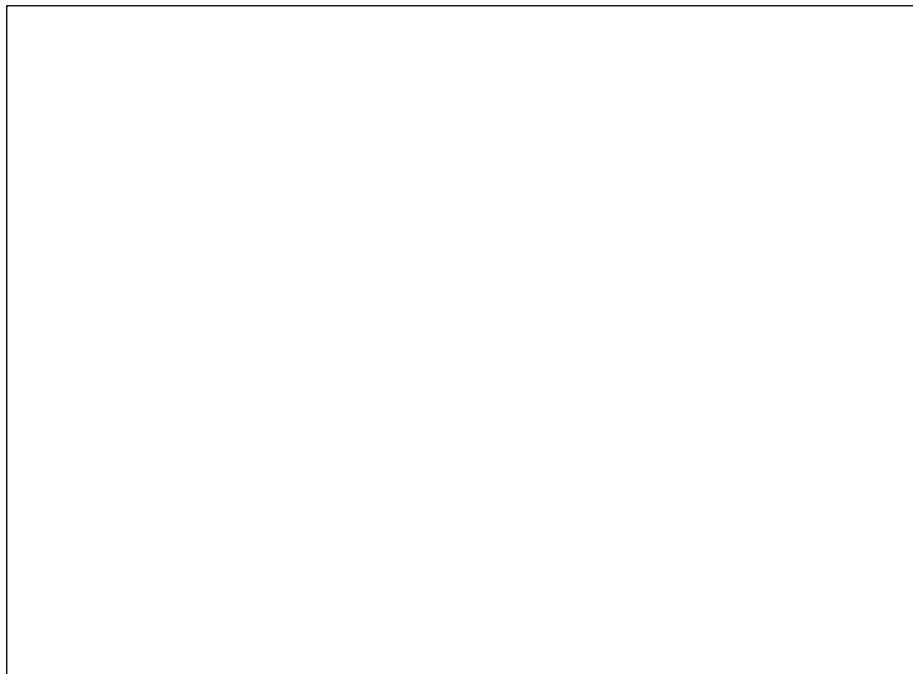
Figure 16a & 16b- The Eskom Project Area between the proposed Leboeng Substation and the Ohrigstad Substation (above and below).



### 6.2.2.1 The preferred route (Alternative 01) for the proposed 132kV Leboeng Ohrigstad power line

This power line runs along the following main stretches, namely:

- The first stretch runs southwards from the Leboeng Substation and then along the eastern side of a mountain with no name (near the R36) across the farm Nooitgedacht 227KT. Alternative 01 then crosses the R36 twice further to the south before bending for a short distance to the south-west. (A deviation which runs to the west across the higher slopes of the mountain with no name is also proposed).



**Figure 17- Alternative 01 follows the foot of a low rise with a church on top before ascending the footslopes of the Drakensberg and then entering the Heuningkrans Valley (above).**

- The second stretch bends to the south and runs south-westwards across the farms Klipfonteinshoek 407KT (where the Echo Caves are located) across a dirt road (leading to the Bushman rock shelter) before it bends further to the south-west and then to the south in order to enter some of the lower slopes of the Drakensberg.

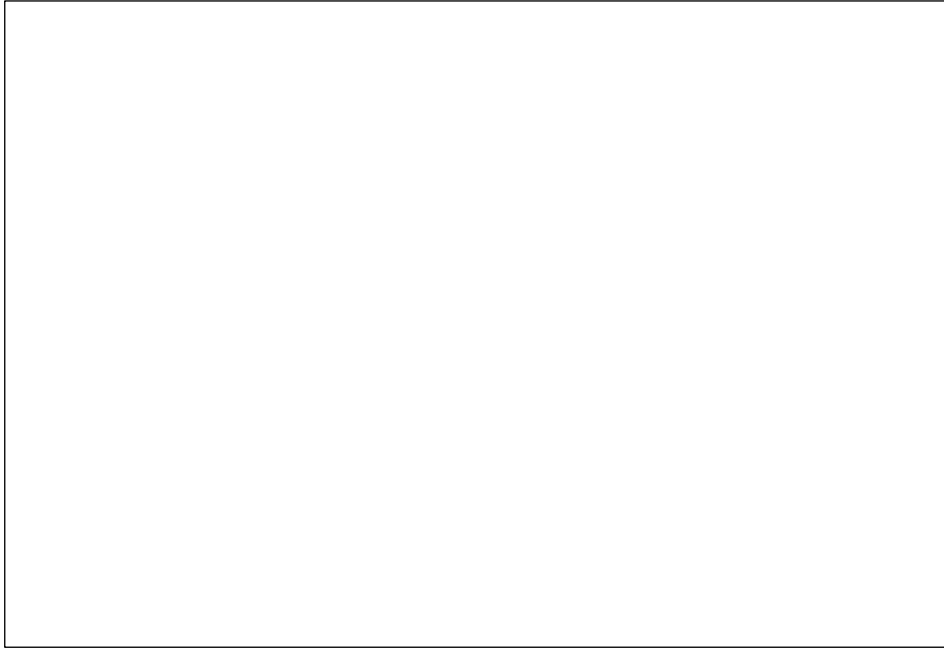


- The third stretch runs westwards from the lower slopes of the Drakensberg into a valley where the Heuningkransspruit flows. Here it joins the shoulder of a dirt road that runs through the valley to the village of Kgautswane on Rietfontein 440KT. When leaving the valley and the village Alternative 01 crosses a dirt road (which runs between Kgautswane and the R36).

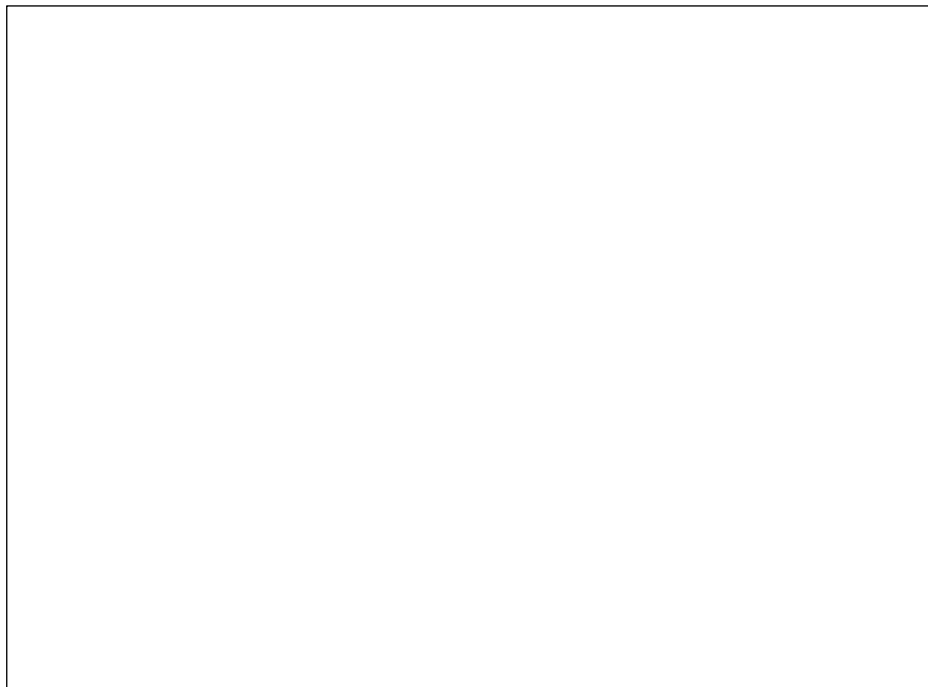


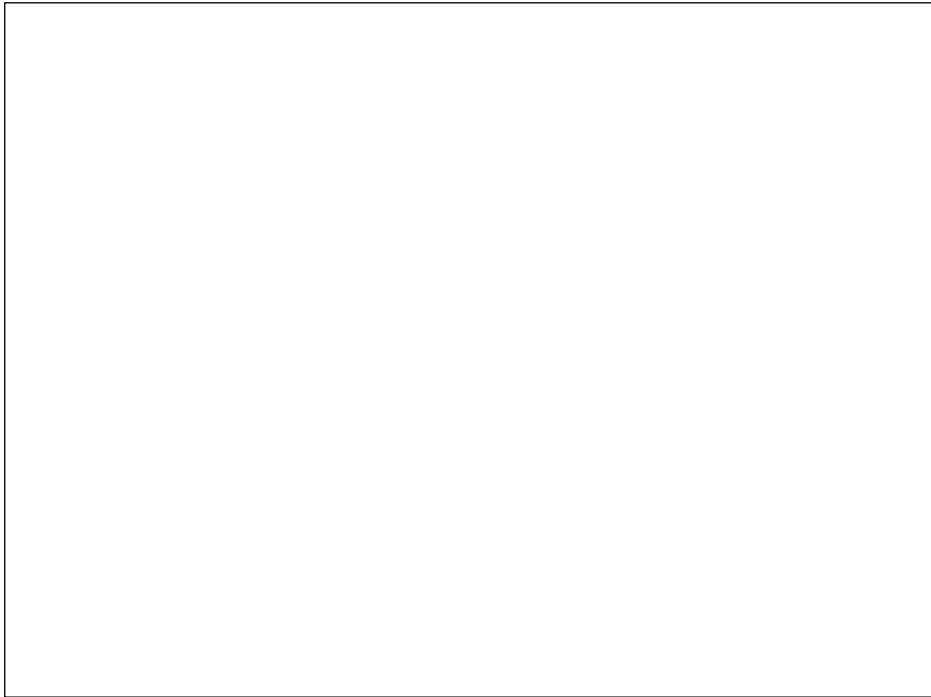
**Figure 18- Alternative 01 runs from the east to the west through the Heuningkrans Valley to the village of Kgautswane (above).**

- The fourth stretch runs south-westwards from Kgautswane across agricultural fields on the farms Jeddo 441KT whilst ascending some of the western foothills of the Drakensberg.
- The fifth stretch bends to the south and runs across higher altitudes of the Drakensberg on Longsight 307KT before crossing the railway line that runs between Burgersfort and Ohrigstad. This stretch also skirts the western side of the mountain Ramakgai and follows the shoulder of the R555 southwards.
- The last short stretch bends away from the R555 in the direction of the Ohrigstad Substation on the farm Kleinfontein 450KT.



**Figures 19 & 20- Alternative 01 ascends the eastern slopes of the western Drakensberg where extensive agricultural fields have been established (above). This power line route also crosses the Ohrigstad/Burgersfort railway line twice before skirting the eastern slopes of the mountain of Ramakgai. The penultimate stretch runs across open veld to the Ohrigstad Substation (below).**



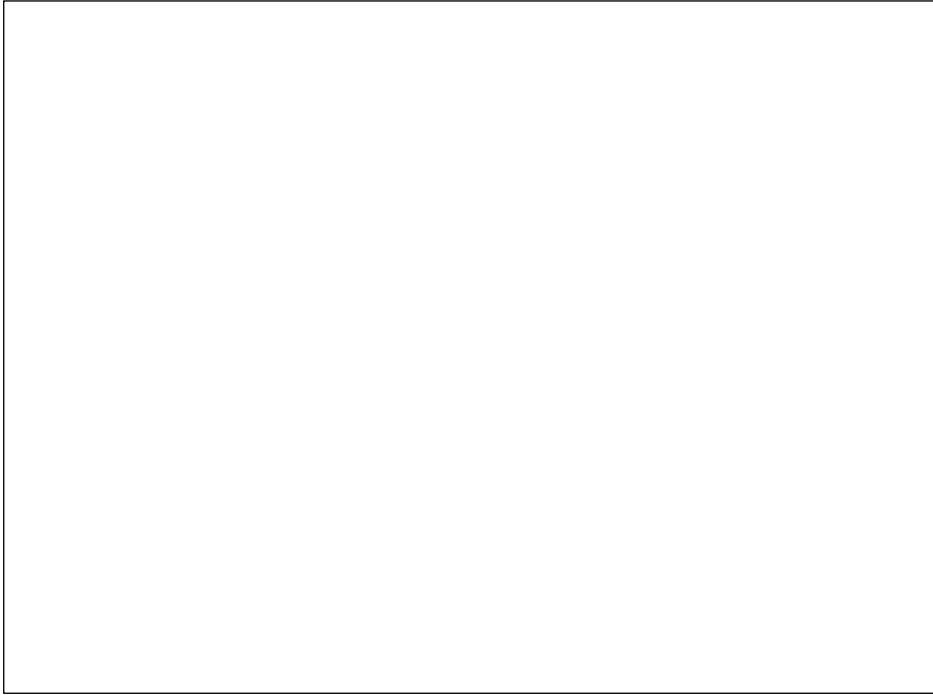


**Figure 21- The penultimate stretch for Alternative 01 runs to the east of the mountain of Ramakgai (right in figure) to the Ohrigstad Substation (above)**

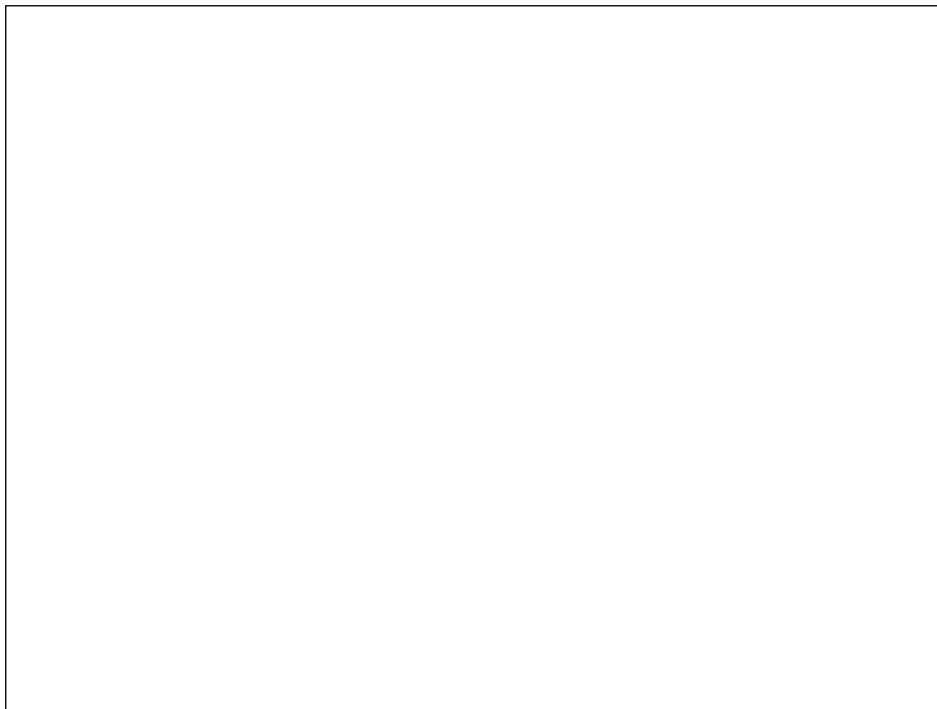
#### **6.2.2.2 Alternative route (Alternative 02) for the proposed 132kV Leboeng Ohrigstad power line**

This power line runs along the following main stretches, namely:

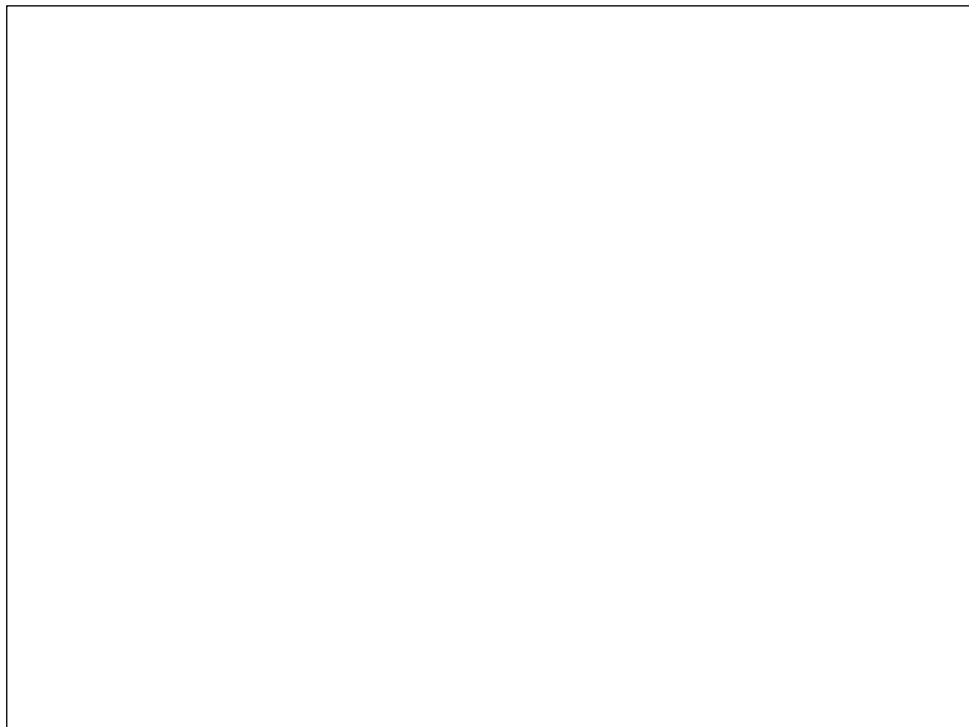
- The first stretch runs from the Leboeng Substation westwards across Nooitgedacht 237KT (north of Magalane) to the village of Makopung where it joins Eskom's existing 275kV Merensky/Foskor power line on Chorlton 405KT.
- The second stretch follows Eskom's 275kV power line further south-westwards crossing the farm Eccles 404KT and part of Fellowfields 403KT which is a high, difficult accessible mountainous area.
- The third stretch bends to the south-west and skirts the western perimeters of Makwareng and Kgautswane on Klipfontein 270KT where it also crosses the road running between the R36 and Kgautswane.



**Figures 22 & 23- The first stretch for Alternative 02 runs to the west across a low range of hills before joining Eskom's existing 275kV Merensky-Foskor power line (above). Alternative 02 crosses the dirt road that runs to Kgautswane which bisects older and younger agricultural fields (above)**



- The fourth stretch bends to the south-east and follow the higher eastern slope of the western Drakensberg across Rietfontein 449KT before bending to the south-west in order to follow the border between Jeddo 441KT and Ohrigstad 443KT before entering the Ohrigstad Substation.



**Figure 24- The Ohrigstad Substation to the west of Drakensberg near the historical (older) Ohrigstad in the southern part of the Eskom Project Area (above).**

### **6.3 Types and ranges of heritage resources**

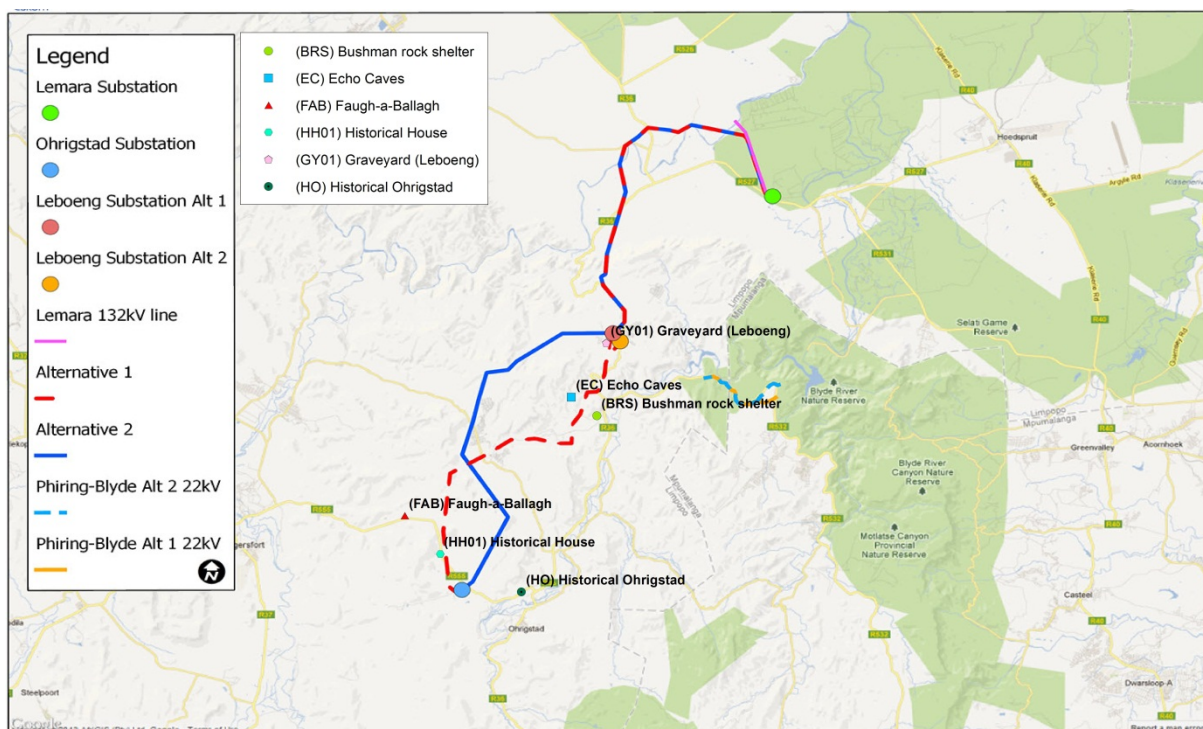
The Phase I HIA for the Eskom Project Area revealed none of the types and ranges of heritage resources outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) along the power line corridors or on the stands for the proposed new Leboeng Substation. Heritage resources which do occur in the larger Eskom Project Area are briefly described and their coordinates are provided. The significance of these heritage resources is not indicated neither is any mitigation measures described as these heritage resources will not be affected by the Eskom Project, namely:

### 6.3.1 Between the Lemara Substation and proposed Leboeng Substation

No heritage resources of have yet been recorded in this area.

### 6.3.2 Between the Leboeng Substation and the Ohrigstad Substation

The following known heritage resources were recorded along this stretch.



**Figure 25- Regional map for the Eskom Project Area shows heritage resources outside (near) the Eskom Project Area (above).**

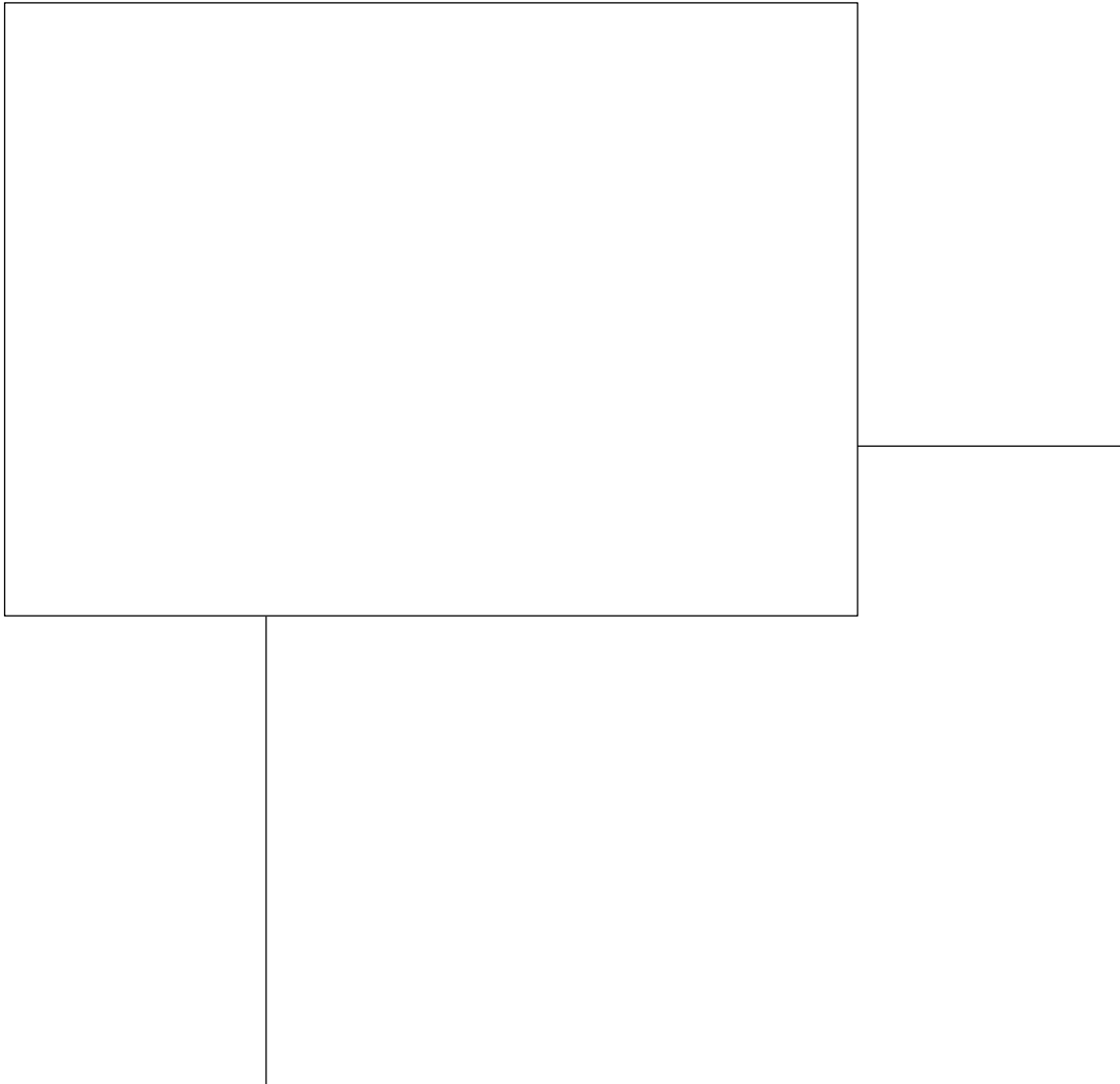
#### 6.3.2.1 A graveyard

A graveyard (GY01) Nooitgedacht 227KT and occurs to the west of the deviation for Alternative 01 which runs to the west and to the east of this kopje. Alternative 02 for the Leboeng Substation is located to the east of this graveyard.

GY01 will not be affected by either the deviation for Alternative 01 or by Alternative 02 for the proposed 132kV Leboeng-Ohrigstad power line.

### 6.3.2.2 Bushman rock shelter

The Bushman rock shelter is located next to the dirt road that runs to villages such as Maketla on the farm Klipfontein 407KT. This rock shelter is situated in a part of the Drakensberg that serves as middle ground between Alternative 01 and Alternative 02 and will not be affected by either one of these two alternatives.



**Figures 26 & 27- Bushman rock shelter is situated between Alternative 01 and Alternative 02 for the 132kV Lemara-Ohrigstad power line and will not be affected by the proposed Eskom Project (above).**

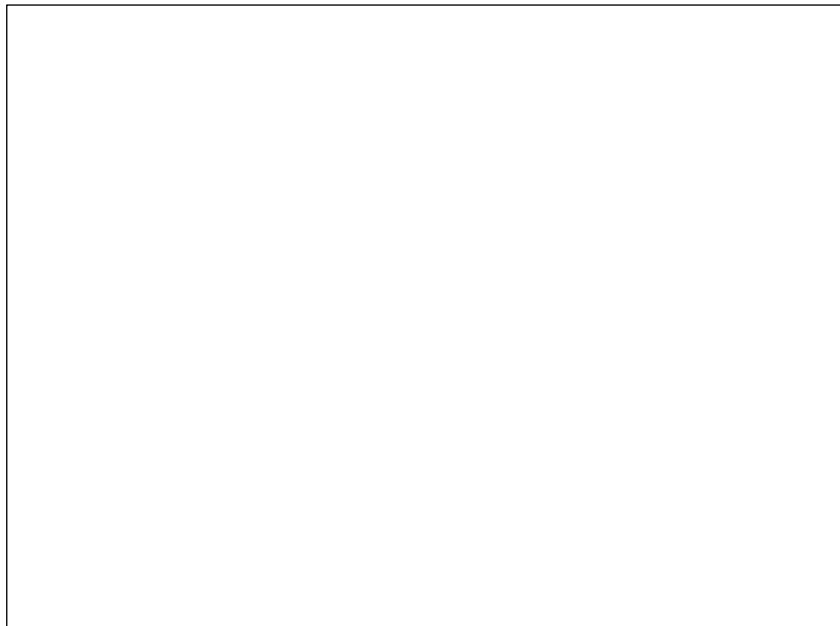
The shelter was repeatedly visited by bands of hunter gatherers over a prolonged period of time. The oldest layers date back to 40 000 years BP and the youngest to

27 000BP. This shelter was also occupied during the LSA, namely from 12 000BP to 9 000BP.

The rock shelter is today used in the local tourism industry to exhibit exhibitions and is marketed as 'The Museum of Man'.

### **6.3.2.3 Echo Caves**

The Echo Caves consist of a system of limestone caves which are the oldest in the world and were discovered by the owner of the farm Klipfontein 407KT on which it is located in 1923. The Caves were open as a tourist attraction upon completion of the Abel Erasmus Pass in 1959 and has been declared a national monument (provincial heritage site) primarily on the basis of its geological attributes and natural beauty.



**Figure 28- Entrance to the Echo Caves which will not be directly impacted by either Alternative 01 or Alternative 02 for the 132kV Lemara-Ohrigstad power line (above).**

### **6.3.2.4 Faugh-a-Balaugh**

The remains of the military fort Faugh-a-Ballagh (Gaelic for 'clear the way') occurs on the farm Faugh-a-Ballagh 306KT to the west of Alternative 01 for the proposed



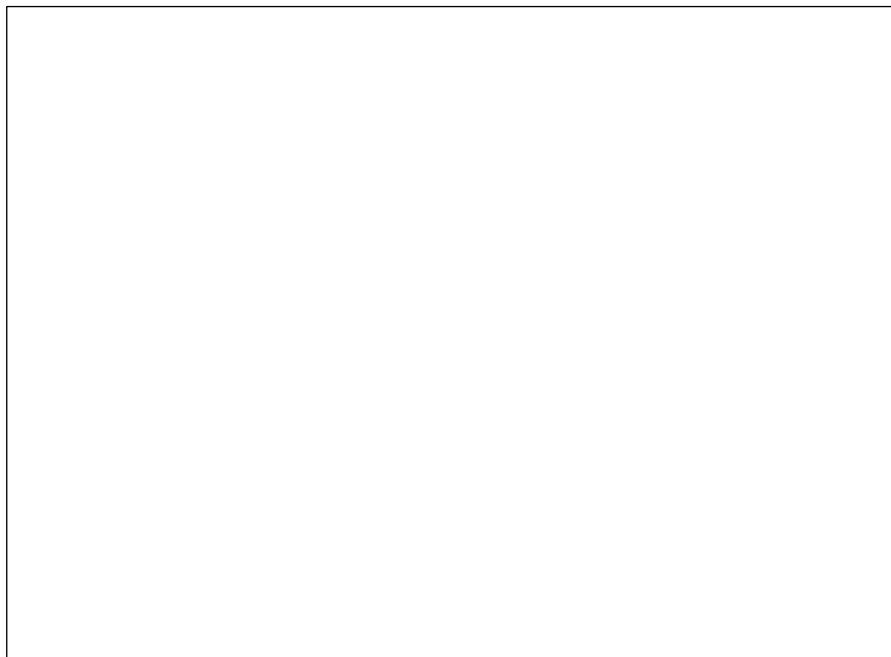
Leboeng-Ohrigstad power line. This fort was built near Magnetites Heights during the Second Sekhukhune War (1878) in order to command the pass to the Steelpoort Valley. The fort was built 800m from Magnetites Heights. Its walls were 5ft high and the fortification covered a surface of 60ft<sup>2</sup> at the time of its construction.

The military fort is located to the west of the Eskom Project Area.

### **6.3.2.5 A historical residence**

A residence which is older than sixty years and which therefore qualifies as a historical building occurs on the farm Longsight 307KT to the west of Alternative 01 for the proposed 132kV Leboeng-Ohrigstad power line.

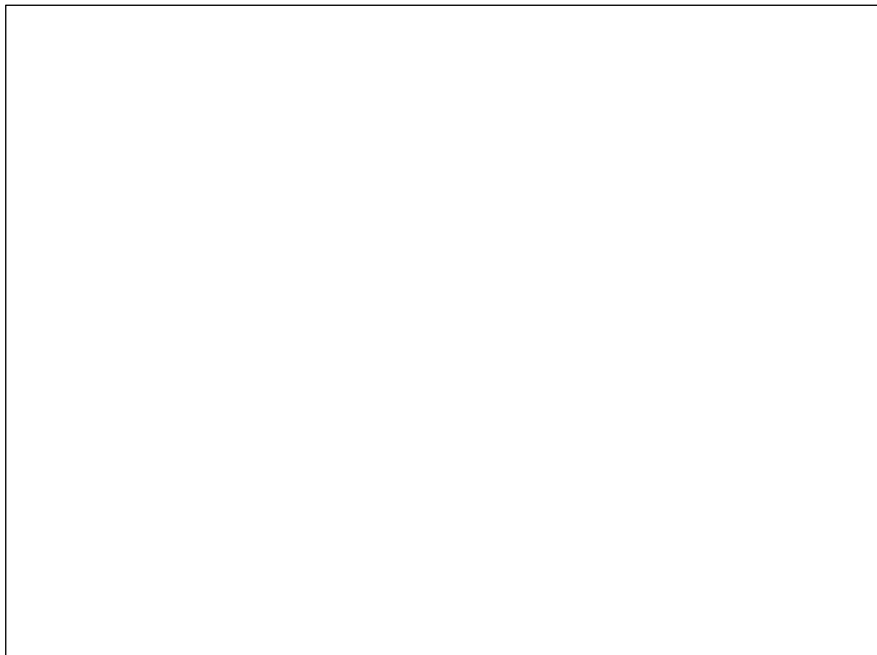
HH01 will not be affected by Alternative 01 for the proposed 132kV Leboeng-Ohrigstad power line.



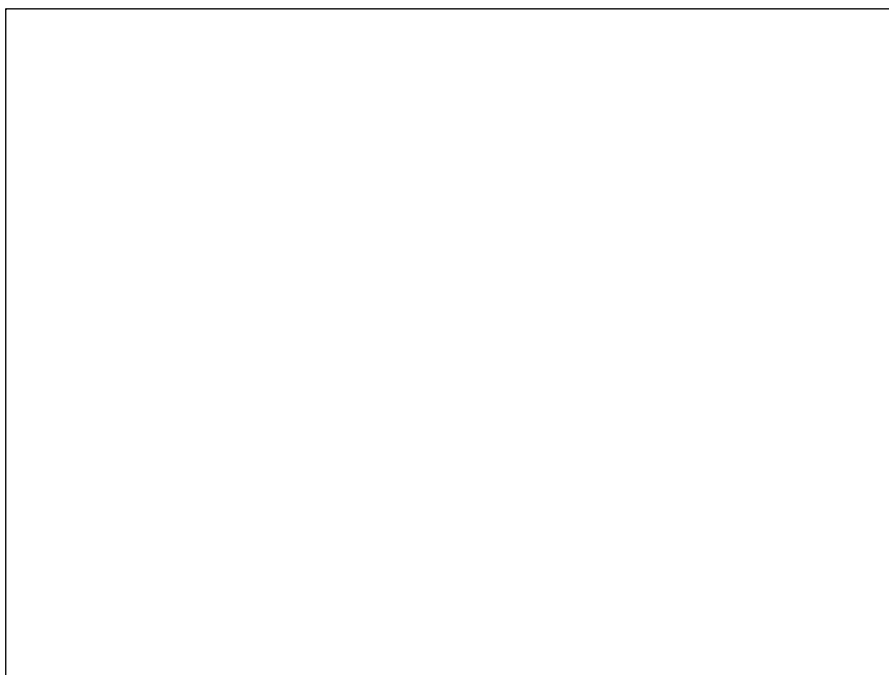
**Figure 29- A residence which is older than sixty years is located near the railway line which runs between Ohrigstad and Burgersfort. It will not be affected by Alternative 01 for the 132kV Lemara-Leboeng power line (above).**

### 6.3.2.6 The historical Ohrigstad

The historical Ohrigstad was established on Ohrigstad 443KT in 1845. The town comprised some forty dwellings, a magistrate's office, a jail, a partially completed church, three shops, redoubts and two graveyards when recorded in 1899 by Jeppe.



**Figures 30 & 31- The original Ohrigstad was established in 1845 but was soon abandoned. Since then the town has been ploughed under and the remains of some of its original occupants were reinterred in 1942 in a new graveyard with a commemorative beacon symbolising an ox wagon (above and below).**



Today, all these remains have disappeared under agricultural fields. The remains of those who died from malaria and other causes during its initial occupation (AD1845 to AD1850) were re-interred in a new graveyard on 10 October 1942 which is situated next to the R555. The remains of the historical Ohrigstad occur to the east of Alternative 02 for the 132kV Lemara-Ohrigstad power line and will not be affected by the Eskom Project.

### 6.3.2.7 The road between Ohrigstad and Burgersfort

The initial town of Ohrigstad on the farm Ohrigstad 443KT was linked with Burgersfort in the west by means of a dirt road that passes the military fortification Faugh-a-Balaugh. The town of Burgersfort developed where a second military fortification known as Fort Burgers was established during the Second Sekhukhune Wars (1876-1877). It seems as if this road closely follows the current railway line which was constructed between Ohrigstad and Burgersfort.

Alternative 01 for the proposed Leboeng-Ohrigstad power line crosses the railway line and the historical road but need not to affect the road as the power lines will be strung above the road and railway line whilst the pylons will be constructed on opposite sides of the railway line and the road.

## 6.4 Table

Heritage resources	Coordinates
(EC) Echo Caves	24° 33 43.68's 30° 36 14.93'E
(BRS) Bushman rock shelter	24° 34 38.34's 30° 37 29.55'E
(FAB) Faugh-a-Ballagh	24° 39 30.74's 30° 28 07.37'E
(HO) Historical Ohrigstad	24° 43 14.43's 30° 33 48.62'E
(GY01) Graveyard (Leboeng)	24° 31 04.84's 30° 37 57.23'E
(HH01) Historical House	24° 41 23.42's 30° 29 50.62'E
Ohrigstad Burgersfort road	Approximate along railway line

**Table 1- The coordinates and the significance of heritage resources outside the Project Area (above).**

## **7 CONCLUSION AND RECOMMENDATION**

The Phase I HIA for the Eskom Project Area revealed none of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) along the power line corridors or on the stands for the proposed new Leboeng Substation.

### **The significance of the heritage resources**

Heritage resources which do occur in the larger Eskom Project Area were briefly described and their coordinates are provided. However, the significance of these heritage resources was not indicated neither was any mitigation measures described as these heritage resources will not be affected by the Eskom Project.

### **The Lemara-Leboeng power lines**

Limited alternatives are available for the construction of the 132kV Lemara-Leboeng-Ohrigstad power line, particularly in the northern part of the Eskom Project Area where the proposed 132kV Lemara-Leboeng power line crosses the Drakensberg. Due to the complicated topographical nature of the Drakensberg Escarpment in the north Alternative 01 and Alternative 02 is near identical. Both these alternatives seem suitable from a heritage point of view for the construction of the 132kV Lemara-Leboeng power line.

Access to Alternative 01 and Alternative 02 were not possible where these alternatives cross the Drakensberg as they run up steep slopes and across high altitudes of the mountain where no access roads exist. However, the aerial survey indicated what was presumed, namely that occupation of these high altitudes probably did not occur in the past. Although some contemporary high-laying agricultural fields were observed towards the southern part of the Eskom Project Area these fields were established on the lower foothills of the western Drakensberg where they are associated with villages which are straggled along the foot slopes of these hills. This settlement pattern where villages along valley floors are associated with agricultural fields on higher altitudes of the Drakensberg may perhaps have expressions in the past. However, such a historical settlement pattern could not be observed during the aerial survey.

### **Mitigation measures**

Both Alternative 01 and Alternative 02 for the proposed 132kV Lemara-Leboeng power line seem to be suitable for construction considered from a heritage point of view. It is recommended that the chosen alternative be surveyed by an archaeologist by means of a walk-through of the power line corridor (where this is possible) and that the pylon positions be inspected after the final alignment of the power line and the pylons positions have been established, *prior* to the construction of the power line.

### **The Leboeng-Ohrigstad power lines**

The southern part of the Eskom Project Area - where Alternative 01 and Alternative 02 for the 132kV Leboeng-Ohrigstad power line crosses the western Drakensberg - becomes more open and accessible particularly along the selected route for Alternative 01. In contrast, Alternative 02 follows the high eastern slopes of the Drakensberg in the south and in the centre where the survey was restricted to the use of a helicopter. The most northern stretch for Alternative 02 which runs from Kgautswane to the proposed Leboeng Substation crosses open and in part flat country. This stretch is suitable from a heritage point of view for the construction of the Leboeng-Ohrigstad power line. However, the inaccessibility of the southern stretch of Alternative 02 reduces its preference as a viable alternative as a result of the technical difficulties and constraints which are associated with this alternative. However, the steep slopes which Alternative 02 follows, which could not be surveyed, were also not suitable for human use or occupation.

### **Mitigation measures**

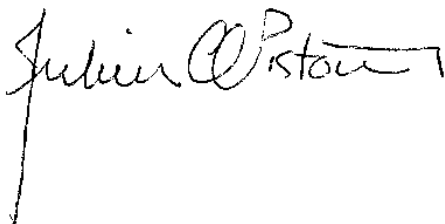
Alternative 01 for the proposed 132kV power line between the Leboeng Substation and the Ohrigstad Substation mainly follows open areas (except where it runs through the Heuningskrans Valley and across some of the western foothills of the Drakensberg). This alternative is recommended to be used for the construction of the new power line as it does not affect any of the heritage resources identified in the larger Eskom Project Area. Alternative 01 also has to be subjected to a walk-through study by an archaeologist in order to inspect the final alignment of the power line and the pylon the positions *prior* to the construction of the power line.

## **Leboeng Substation**

Both Alternative 01 and Alternative 02 are suitable for the construction of the proposed new Leboeng Substation.

### **Summary (recommended routes, substation site and mitigation)**

- Both Alternative 01 and Alternative 02 for the proposed 132kV Lemara-Leboeng power line are recommended for the construction of the power line. Both Alternatives (01 and 02) which are near identical must be subjected to a walk-through study when the final alignment for this power line and the pylon positions has been determined, *prior* to commencement with the construction of the new power line.
- Both Alternative 01 and Alternative 02 for the proposed Leboeng Substation are recommended for the construction of the substation.
- Alternative 01 for the proposed Leboeng-Ohrigstad power line is recommended for the construction of the power line. This alternative must be subjected to a walk-through study when the final alignment for this power line and the pylon positions has been determined *prior* to commencement with the construction of the new power line.



**DR JULIUS CC PISTORIUS**

**Archaeologist & Heritage Consultant**

**Member ASAPA**

## **8 SELECT BIBLIOGRAPHY**

Bergh, J.S. 1992. Die vestiging van die Voortrekkers noord van die Vaalrivier tot 1840. *Historia*, 37(2); 38-42.

Collett, D.P. 1979. The archaeology of the stone walled settlements in the Eastern Transvaal, South Africa. *MSc Dissertation University of the Witwatersrand*.

Collett, D.P. 1983. Excavations of stone walled ruin types in the Badfontein Valley, Eastern Transvaal, South Africa. *South African Archaeological Bulletin*, 37:34-43.

Delius, P. 1984. The land belongs to us. Raven Press: Johannesburg.

Delius, P. 2007. Mpumalanga. History and Heritage. C.T.P. Book Printers: Cape Town.

Delius, P. & Hay, M. 2009. *Mpumalanga: an illustrated history*. Johannesburg: The Highveld Press.

Delius, P & Schoeman 2008, A. Revisiting Bokoni: Populating the stone ruins of the Mpumalanga Escarpment. In Swanepoel, N., Esterhuisen, A. & Bonner, P. (eds.) *Five hundred years rediscovered. South African precedents and prospects*, 135-167.

Erasmus, B.P.J. 1995. *Oppad in Suid Afrika. 'n Gids tot Suid Afrika, Streek vir Streek*. Jonathan Ball Uitgewers Bpk.

Esterhuysen, A. & Smith, J. 2007. Stories in stone. In Delius, P. (ed.) *Mpumalanga. History and Heritage*. University of Kwa Zulu Natal Press: Scottsville.

Evers, T.M. 1977. Plaston Early Iron Age site White River District, eastern Transvaal, South Africa. *South African Archaeological Bulletin*. 32:170-178.

Evers, T.M. 1980. Klingbeil Early Iron Age sites, Lydenburg, eastern Transvaal, South Africa. *South African Archaeological Bulletin*. 35:46-57.

Evers, T.M. 1981. The Iron Age in the Eastern Transvaal, South Africa. In Voight, E.A. (ed). *Guide to archaeological sites in Northern and Eastern Transvaal*. Pretoria: South African Association of Archaeologists, 64-109.

Evers, T.M. 1982. Excavations at the Lydenburg Heads site, eastern Transvaal, South Africa. *South African Archaeological Bulletin*. 37:16-33.

Evers, T.M. 1977. Plaston Early Iron Age site White River District, eastern Transvaal, South Africa. *South African Archaeological Bulletin*. 32:170-178.

Evers, T.M. 1980. Klingbeil Early Iron Age sites, Lydenburg, eastern Transvaal, South Africa. *South African Archaeological Bulletin*. 35:46-57.

Evers, T.M. 1981. The Iron Age in the Eastern Transvaal, South Africa. In Voight, E.A. (ed). *Guide to archaeological sites in Northern and Eastern Transvaal*. Pretoria: South African Association of Archaeologists, 64-109.

Evers, T.M. 1982. Excavations at the Lydenburg Heads site, eastern Transvaal, South Africa. *South African Archaeological Bulletin*. 37:16-33.

Kinsey, H.W. 1973. The Sekhukhune Wars, Part II. *Military History Journal*. Vol. 2 No. 6.

Krige, J.D. 1937. Traditional origins and tribal relationships of the Sotho of the Northern Transvaal. *Bantu Studies*. 11. 4..

Kruger, F. 1936. The Lovedu. *Bantu Studies*. 10, 1..

Maggs, T.M. 1983. Neglected rock art. The rock engravings of agriculturist communities in South Africa. *South African Archaeological Bulletin*. 50:132-152.

Maggs, T.M. 2008. The Mpumalanga Escarpment settlements. In (Swanepoel, N., Esterhuisen, A. & Bonner, P. eds.) *Five hundred years rediscovered. South African precedents and prospects*. 169-182.

Makhura, T. 2007. Early inhabitants. In Delius, P. (ed). *Mpumalanga. History and Heritage*. University of Kwa Zulu Natal Press: Scottsville.



Mason, R.J. 1968. Transvaal and Natal Iron Age settlement revealed by aerial photography and excavation. *African Studies*. 27:167-180.

Mönnig, H.O. 1978. *The Pedi*. National Book Printers: Cape Town.

Naude, M. 1993. The use of stone on farmsteads on the eastern Transvaal. *Africana Society of Pretoria* (11): 49-55.

Naude, M. 2000. Vernacular stone buildings and structures on farmsteads in the southern districts of the Mpumalanga Province. *South African Journal of Cultural History*. 14(2): 31-64

Pistorius, J.C.C. 2005. A Phase I Heritage Impact Assessment (HIA) study for Xstrata Alloys Lydenburg new proposed Residue Management Facility (RMF) in the Mpumalanga Province of South Africa. Unpublished report for JMA Consulting (Pty) Ltd and Xstrata Alloys Lydenburg.

Pistorius, J.C.C. 2005. *A Heritage Impact Assessment (HIA) study for a proposed new power line between the Merensky Substation and the Burgersfort Substation in the Limpopo (Northern) Province of South Africa*. Unpublished report prepared for PBA International and Eskom.

Pistorius, J.C.C. 2009. *A Phase I Heritage Impact Assessment (HIA) study for X Strata's proposed Kuka aerial ropeway project between Steelpoort and Lydenburg in the Limpopo and Mpumalanga Provinces of South Africa*. Unpublished report prepared for Golder Associates.

Pretorius, Fransjohan. 1999. Life on commando during the Anglo Boer War 1899-1902. Human & Rousseau: Cape Town.

Smith, B.W. & Zubieta, L. 2007. The power of ancient art. In Delius, P. (ed.) *Mpumalanga. History and Heritage*. University of Kwa Zulu Natal Press: Scottsville.

Schoonraad, M. & Beaumont, P. 1971. The Welgelegen Shelter, Eastern Transvaal. In Schoonraad M. (ed.). Rock paintings of Southern Africa (*Supplement to the South African Journal of Science*. Special Publication No. 2).

Schoonraad, M. & Schoonraad, E. 1975. Rotsskilderinge in die Oos Transvaalse Laeveld. In Barnard, C. (ed.) *Die Transvaalse Laeveld*. Cape Town: Tafelberg.

Van Warmelo, N.J. 1935. A preliminary survey of the Bantu tribes of South Africa. Pretoria: Government Printer.

Whitelaw, G. 1996. Lydenburg revisited. Another look at the Mpumalanga Early Iron Age sequence. *South African Archaeological Bulletin*. 51.

## **APPENDIX A: DETAILS OF THE SPECIALIST**

**Profession:** Archaeologist, Museologist (Museum Scientists), Lecturer, Heritage Guide Trainer and Heritage Consultant

**Qualifications:**

BA (Archaeology, Anthropology and Psychology) (UP, 1976)

BA (Hons) Archaeology (distinction) (UP, 1979)

MA Archaeology (distinction) (UP, 1985)

D Phil Archaeology (UP, 1989)

Post Graduate Diploma in Museology (Museum Sciences) (UP, 1981)

**Work experience:**

Museum curator and archaeologist for the Rustenburg and Phalaborwa Town Councils (1980-1984)

Head of the Department of Archaeology, National Cultural History Museum in Pretoria (1988-1989)

Lecturer and Senior lecturer Department of Anthropology and Archaeology, University of Pretoria (1990-2003)

Independent Archaeologist and Heritage Consultant (2003-)

**Accreditation:** Member of the Association for Southern African Professional Archaeologists. (ASAPA)

**Summary:** Julius Pistorius is a qualified archaeologist and heritage specialist with extensive experience as a university lecturer, museum scientist, researcher and heritage consultant. His research focussed on the Late Iron Age Tswana and Lowveld-Sotho (particularly the Bamalatji of Phalaborwa). He has published a book on early Tswana settlement in the North-West Province and has completed an unpublished manuscript on the rise of Bamalatji metal workings spheres in Phalaborwa during the last 1 200 years. He has written a guide for Eskom's field personnel on heritage management. He has published twenty scientific papers in academic journals and several popular articles on archaeology and heritage matters. He collaborated with environmental companies in compiling State of the Environmental Reports for Ekurhuleni, Hartebeespoort and heritage management plans for the Magaliesberg and Waterberg. Since acting as an independent consultant he has done approximately 800 large to small heritage impact assessment reports. He has a longstanding working relationship with Eskom, Rio Tinto (PMC), Rio Tinto (EXP), Impala Platinum, Angloplats (Rustenburg), Lonmin, Sasol, PMC, Foskor, Kudu and Kelgran Granite, Bafokeng Royal Resources etc. as well as with several environmental companies.

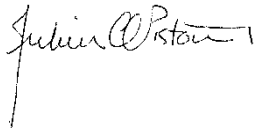
**APPENDIX B: DECLARATION OF INDEPENDENCE**

I, Julius CC Pistorius, declare that:
---------------------------------------

- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the National Heritage Resources Act (No 25 of 1999) and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

**Disclosure of Vested Interest**

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010.



\_\_\_\_\_  
Signature of the environmental practitioner:  
Private Consultant

\_\_\_\_\_  
Name of company:  
5 January 2012

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Signature of the Commissioner of Oaths:

\_\_\_\_\_  
Date:

\_\_\_\_\_  
Designation: