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**A REVISED PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY
FOR ESKOM'S PROPOSED CONSTRUCTION OF 2X132kV POWER
LINES FROM BORUTHO MAIN TRANSMISSION SUBSTATION TO THE
PROPOSED AKANANI SUBSTATION IN THE LIMPOPO PROVINCE**

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Executive Summary

This Phase I Heritage Impact Assessment (HIA) study for Eskom's proposed Akanani Project near Bakenberg and Mokopane in the Limpopo Province was undertaken according to Section 38 of the National Heritage Resources Act (No 25 of 1999). The aims with the Phase I HIA study were the following:

- To determine if any of the types and ranges of heritage resources (the '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 establish the significance of these heritage resources.
- To establish the level of significance of any possible impact on these heritage resources.
- To propose appropriate mitigation measures for those types and ranges of heritage resources that may be negatively affected by the proposed Eskom Akanani Project.

The Phase I HIA study for the Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the Project Area, namely:

- Definite graveyards and possible graves and graveyards.
- Remains from the recent past some of which may be older than sixty years.

All these heritage resources were geo-referenced and mapped (Figure 9; Tables 1 & 2). The significance of the heritage resources is indicated (Tables 1, 2, 3 & 4) as well as the significance of any impact on these heritage resources (Tables 7 and 8).

The significance of the heritage resources

Some of the heritage resources may be affected by the proposed Eskom Akanani Project. Consequently, the significance of the heritage resources have to be determined as well as the significance of the impact on the heritage resources. Mitigation measures are outlined for those heritage resources which may be impacted by the Eskom Akanani Project.

Graveyards and graves

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 1). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

The significance of the remains from the recent past

Some of these remains are older than sixty years and therefore are protected by the National Heritage Resources Act (No 25 of 1999) (Table 2).

The historical remains are rated as of medium to low significance. This rating is based on the use of two rating (grading) schemes, namely:

- A scheme of criteria which qualifies places and objects as part of the national estate as they have cultural significance or other special value (outlined in Section 3 of the NHRA [Act No 25 of 1999] (see Box 1) (Table 3).

- A field rating scheme according to which heritage resources are graded in three tiers (levels) of significance based on the regional occurrence of heritage resources (Table 4) (Section 7 of the NHRA [Act No 25 of 1999]).

The significance of the remains from the recent past some of which may be older than sixty years is graded as low to medium in terms of their part of the national estate (Table 3).

According to the highlighted field rating scheme the remains from the recent past some of which are older than sixty years can be rated as of medium to low significance (Table 4).

Possible impact on the heritage resources

The Eskom Project Area comprises the footprint of Alternative 01 and Alternative 02 for the 2x132kV power lines from Boruto MTS to Akanani Substation, the construction of the proposed 100m x 100m Akanani Substation (plus 10m buffers) and access road with a width of 6.5m.

Although some of the heritage resources fall within the 300m buffer which was surveyed for the power lines and also occur near the footprint of the Akanani Substation none of these heritage resources will be directly impacted by the proposed Eskom Akanani Project. The distances between the graveyards, possible graves and the remains from the recent past and the power lines and substation with access road are indicated in Tables 5 & 6.

The significance of the impact on the graveyards and graves

None of the definite or possible graveyards and graves will be directly impacted by the proposed Eskom Akanani Project. The significance of any possible impact on the definite and possible graveyards and graves therefore is very low (Table 7).

The significance of the impact on the remains from the recent past

The significance of the impact on the remains from the recent past some of which may be older than sixty years will be of low significance (Table 8).

Mitigating the graveyard impact

None of the definite or possible graveyards and graves will be affected by the proposed Akanani Project. However, it is recommended that the possible grave sites be demarcated with red cautionary tape before construction commences in order to safeguard these sites from possible accidentally damage caused by construction personnel and their vehicles. Signposts with inscriptions 'Beware and avoid. Possible grave site' should be erected at the barricaded sites.

Mitigating the impact on the remains from the recent past

The remains from the recent past some of which may be older than sixty years have low to medium significance and therefore need no mitigation measures.

Summary:

Both Alternative 01 and Alternative 02 can be used for the construction of the 132kV power lines. A walk-through (pedestrian) survey of the chosen power line corridor must be conducted considering the number of graves and graveyards which occur in the general area. The pedestrian survey must be done after the final alignment for the power line has been established and after the power line has been pegged before construction commences. If any heritage resources of significance is exposed during the Eskom Akanani 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 BACKGROUND

This document contains the report on a Phase I Heritage Impact Assessment (HIA) study which was done for the proposed Akanani Substation, 2x132kV power lines and associated works (Eskom Akanani Project) north-west of Mokopane in the Limpopo Province of South Africa.

The Limpopo Province of South Africa has a rich heritage comprised of remains dating from the pre-historic and from the historical (or colonial) periods of South Africa. Pre-historic and historical remains in the Limpopo Province present 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' (outlined in Section 3 of the National Heritage Resources Act, Act No 25 of 1999) occur in this province (see Box 1).

Box 1: Types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (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 paleontological 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 Tissue Act, 1983 (Act No 65 of 1983)
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) moveable objects, including -
 - (i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological 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;
- (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (d) 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) 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 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 excavated more than twenty LIA settlements in North-West and twelve IA settlements in the Lowveld and has mapped hundreds of stone walled sites in the North-West. 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. Pilanesberg Platinum Mine, etc. as well as with several environmental companies.

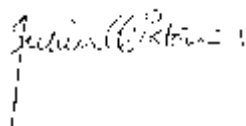
3 DECLARATION OF INDEPENDENCE

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, 2014.



Private Consultant
15 March 2017

4 TERMS OF REFERENCE

Eskom's development of the proposed Akanani Project near Bakenberg and Mokopane may have an influence 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). In order to comply with Section 38 of the National Heritage Resources Act (No 25 of 1999), Eskom requires knowledge of the presence, relevance and significance of any heritage resources that may be affected or influenced by the proposed Eskom Project.

Eskom needs this information in order to take pro-active measures with regard to any heritage resources that may be affected by the proposed Akanani Project. Dynamic Integrated Geo-Hydro Environmental Services (DIGES), the company who is responsible to undertake the required Scoping and Environmental Impact Reporting (S & EIR) process for the proposed Eskom Akanani Project, therefore commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) study for the Eskom project area.

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

- To determine if any of the types and ranges of heritage resources (the '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 establish the significance of these heritage resources.
- To establish the level of significance of any possible impact on these heritage resources.
- To propose appropriate mitigation measures for those types and ranges of heritage resources that may be affected by the proposed Eskom Akanani Project.

5 THE PROJECT AREA

5.1 Location

The Eskom Project Area is situated approximately twenty-five kilometres to the north-west of Mokopane in the Mogalakwena Local Municipality in the Limpopo Province of South Africa. The Eskom Project Area stretches across a broad swath of land which is demarcated in the south by the Moholsane River and which runs between Magalakwena Platinum Mine in the south-west and the Borutho Substation in the north-east. The proposed power lines will traverse the following farms: Zuid Holland 773LR, Noord Brabant 774LR, Witrivier 777LR, Drenthe 778LR, Moordkopje 813LR, Zwartfontein 814LR, Overysel 815LR and Zwartfontein 818LR. The Witriver roughly demarcated the Eskom project area in the north (2328DD Limburg; 1:50 000 topographical map) (Figure 1).

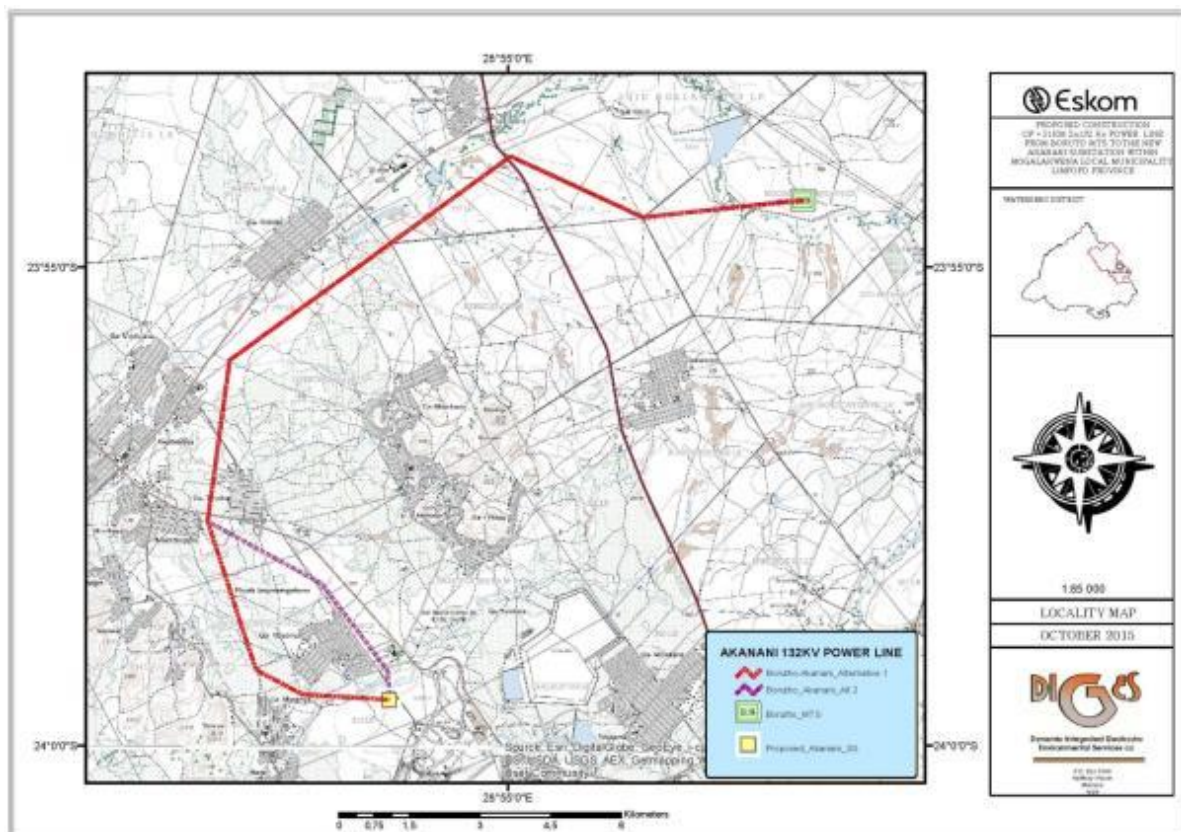


Figure 1- The Eskom Akanani Project involves the construction of 2x132kV power lines between the Borutho Substation and the proposed Akanani Substation north-west of Mokopane near the Magalakwena Platinum Mine in the Limpopo Province (above).

The Eskom Akanani Project is located in the Mogalakwena Local Municipality in the Limpopo Province. The Eskom project area is surrounded by communities whose ancestors were once part of the sphere of influence of the Langa Ndebele, a community whose origins can be traced to Nguni (Kwa Zulu/Natal) ancestry. The Langa Ndebele intermarried, over centuries, numerous Sotho and other clans. They occupied villages and homesteads in the territory where the proposed new power line and substation will be established.



Figure 2- The proposed Akanani Substation is located behind the waste rock dumps in the south-eastern corner of the farm Zwartfontein 814 (above).

Towns that surround the Eskom project area include Ga Masenya, Molotswi, Mapela and Ga Mosoge. The descendants of the Ledwaba/Maune Ndebele clans live in the Bergzicht-Kalkspruit and Mašašane townships to the east of the Eskom project area.

Few outstanding geographic features occur in the Eskom project area, except the prominent Fonthane mountain range along the western border of the Eskom project area. The Mohlosane River crosses the Eskom Project Area near its southern perimeter and the Witrivier is located along its northern border.

5.2 The nature of the Eskom Akanani Project

The Eskom Akanani Project involves the following developmental components, namely:

- The construction of ±21km, 2 x132kV power lines from Boruto MTS to the proposed Akanani Substation;
- Construction of a 100m x 100m Akanani Substation; and
- the construction of an access road to the Akanani Substation with a width of 6.5m.

Two alternatives are proposed for the proposed new 132kV power lines, namely:

- Alternative 01 runs from the Borutho Substation to the proposed new Akanani Substation (red dotted line)
- Alternative 02 also runs from the Borutho Substation to the proposed Akanani Substation but its penultimate and last stretches differ slightly from that of Alternative 01 (purple dotted line) (Figure 1).

The Eskom Project Area refers to a buffer (corridor) which is 300m in width in which the two alternatives may be constructed and the footprint of the proposed Akanani Substation (100mx100m with an additional buffer which is 10m in width) (Figure 9 outlines the buffers).

6 APPROACH AND METHODOLOGY

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

6.1 Field survey

The field survey for the proposed Eskom Project was conducted by means of following existing roads leading into farmsteads and villages across the project area as well as by means of two tracks roads when available in open veld. Ecological indicators of possible heritage resources such as disturbed grass veld, stands with invader weeds or spots which were cleared from indigenous bush served as sensitive spots which were surveyed for possible heritage sites.

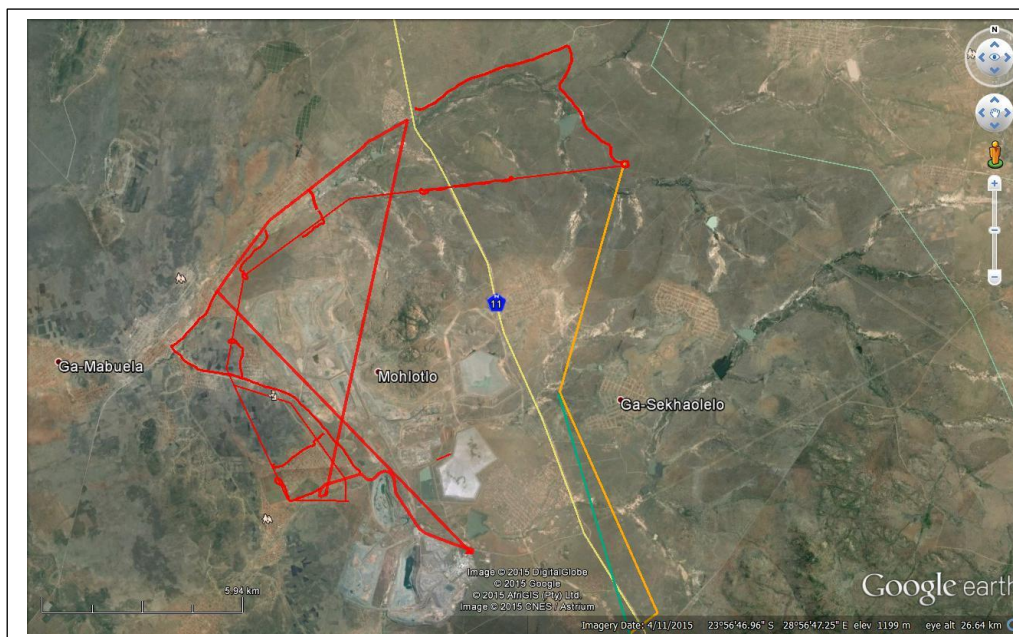


Figure 3- GPS track log which was registered for the project area. Pedestrian surveys were conducted from the main pathway which was recorded with a mounted GPS instrument (above).

The main routes which were followed with a vehicle during the survey were recorded with a mounted GPS instrument. Pedestrian surveys were undertaken from the main pathway (Figure 3).

All coordinates for heritage resources were recorded with a Garmin Etrex hand set Global Positioning System (instrument) with an accuracy of < 15m.

Fieldwork was done on 12 and 13 June 2015, 3 August 2015 and from 22 to 23 November 2015. The author was accompanied by the ornithologist Megan Diamond on 23 November 2015.

Google imagery was used as a supplementary source next to the fieldwork to determine the possible presence of sites.

The description of the fieldwork survey (Part 6.1) further illuminates the nature and character of the project area by means of descriptions and photographs.

6.2 Databases, literature survey and maps

Databases kept and maintained at institutions such as the Provincial Heritage Resources Agency (PHRA), the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and SAHRA's national archive (SAHRIS), were consulted to determine whether any heritage resources of significance have been identified during earlier heritage surveys in or near the Project Area.

A number of heritage impact assessment studies have been done near the Project Area (see Part 13, 'Bibliography relating to earlier heritage studies').

Literature relating to the pre-historical and the historical unfolding of the project area reviewed (see Part 5.3, 'Historical context of the Eskom Project Area' and Part 12 'Select Bibliography').

In addition, the Project Area was studied by means of maps and imagery on which it appears (2328DD Limburg; 1:50 000 topographical maps).

6.3 Significance rating

The significance of potential heritage impacts was determined using a generic ranking scale which is used in most environmental impact assessment studies and which is based on the following:

- Occurrence
 - Probability of occurrence (how likely is it that the impact may/will occur?), and
 - Duration of occurrence (how long may/will it last?)
- Severity
 - Magnitude (severity) of impact (will the impact be of high, moderate or low severity?), and
 - Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?)

Each of these factors has been assessed for each potential impact using the following ranking scales:

Probability: 5 – Definite/don't know 4 – Highly probable 3 – Medium probability 2 – Low probability 1 – Improbable 0 – None	Duration: 5 – Permanent 4 - Long-term (ceases with the operational life) 3 - Medium-term (5-15 years) 2 - Short-term (0-5 years) 1 – Immediate
Scale: 5 – International 4 – National 3 – Regional 2 – Local 1 – Site only 0 – None	Magnitude: 10 - Very high/don't know 8 – High 6 – Moderate 4 – Low 2 – Minor

The significance of each potential impact was assessed using the following formula:

Significance Points (SP) = (Magnitude + Duration + Scale) x Probability

The maximum value is 100 Significance Points (SP). Potential impacts are rated as very high, high, moderate, low or very low significance on the following basis:

- More than 80 significance points indicates VERY HIGH environmental significance.
- Between 60 and 80 significance points indicates HIGH environmental significance.
- Between 40 and 60 significance points indicates MODERATE environmental significance.
- Between 20 and 40 significance points indicates LOW environmental significance.
- Less than 20 significance points indicates VERY LOW environmental significance.

6.4 Assumptions and limitations

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 Akanani 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.

6.5 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 man-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 16th century and the 19th 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 20th 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 people 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 involves permitting processes, requires the input of different specialists and the co-operation and approval of the SAHRA.

7 CONTEXTUALISING THE ESKOM PROJECT AREA

7.1 Brief outline of prehistory and history

The Eskom Project Area is part of a vast plain which is dotted with scattered mountain, isolated kopjes and syenite knolls which are scattered from Mokopane westwards along the eastern fringes of the Waterberg mountain range past Bakenberg to Marken further to the north. This area used to be the sphere of influence of the Langa-Ndebele and other clans such as the Koni. The Langa Ndebele is an Nguni group who after settling in the region subjugated a number of clans from as early as the sixteenth century. The names of some of the early Langa Ndebele settlements appear in bold (2428BB Tinmyne & 2328DD Limburg, 1:50 000 topographical maps) (Van Warmelo 1930, Jackson 1982).

The area is characterised by a number of large mountains and smaller kopjes and knolls scattered over a vast plain. Some of the mountains bear historical names such as Mapela, Masenya and the historically well-known Fonthane and Thutlwane. Further to the north is Bankenberg and still further north in the Masebe Nature Reserve is the mountain of Magagamatala. Some of the mountains in this area serve as important historical settlements, battlefields and as graveyards for the Langa Ndebele.

The Ndebele of Langa are of Hlubi (Nguni) origin. The name of their clan, Langa, was derived from the name of their original chief when the clans were part of the Hlubi. They originated from eNgungunglovu (Pietermaritzburg) where they occupied a place known as Langalibalele. (Other clans such as the Mbo [Mkize], Bhele, Phuti, Polane and Swazi also trace their genealogies back to a Chief Langa who lived during the latter half of the 17th century). The second half of the 17th century was a turbulent period in Hlubi history, as the Langa clan hived off from the main body in AD1650. They were led by Langalibalele/Masebe I (Masebethêla) from Hlubi country through what is today Swaziland. Their first significant stop was near Leydsdorp or Mafefera. They moved to Bosega, an area around Bonye, east of Pietersburg, and the present territory of the Molepo chiefdom. After a short stay, the Langa moved to Thaba Tšweu (Witkoppes Mountain), a few kilometres to the south-east of Pietersburg, where they remained for four generations. The chiefs who ruled and died at **Thaba Tšweu** were Masebe I, Mapuso, Podile and Masebe II.



Figure 4- A Langa Ndebele settlement, possibly Thutlwane which was occupied during the 19th century. Note the extensive remains of stone walls on the two levels of the mountain. (The stone walls are visible as circles and lines in the yellow grass veld on top of the mountain) (above). The settlement is located outside the Eskom Project Area.

During their sojourn and stay in the Limpopo Province, the Langa adopted the Sotho language and culture fully. They adopted the custom of circumcision from the Matlala (Koni). The fact that they accepted 'medicated' (treated) pumpkin, a symbolic gesture by which seniority is acknowledged, from the Ndebele of Kekana (near Zebediela) proves that they acknowledged the seniority of this clan which had also moved to the Transvaal from the KwaZulu/Natal region.

Seritarita, who succeeded Masebe II at **Thaba Tšweu**, led the clan to **Maleoko** (on the farm Bultongfontein [239KR]), where he remained for three years. From here, the clan moved to **Moumong-wa-Matswake** on the farm Zuid-Holland 773LR. Their settlement was known as **Mokgokong**. Seritarita was succeeded by Mapela, son of Seritarita's third ranking wife.

Two sons of Seritarita higher in rank than Mapela namely Mosogo (son of the second ranking wife) and Mamaala (Makgenene) established several villages around the royal lineage of Mapela during the 19th century, e.g. **Mabyanamatshwaana**, **Tsotsodi** and **Segodini**. These lineages still enjoy seniority, as can be seen during initiation lodges.

During Mapela's stay at **Moumong wa Matswake**, numerous smaller Sotho clans were subjugated and incorporated in the Langa tribe. (Clans that were incorporated before Mapela's rule were the Tlhaloga Kwena of Tshaba, the Bakwena of Lelaka and the Dikgomo of Lebelo). The Phalane Nareng of Mabuêla and the Pedi of Matlou were attacked before the Langa Ndebele settled at **Moumong wa Matswake**. Internal strife amongst the Phalane enabled the Langa to incorporate a section of this group, as well as the Pedi of Matlou. When the Phalane fled (to Ramakôka), the Bididi (or Tlhatlherwa) fled to **Bobididi** near Villa Nora.

Also incorporated amongst the Langa were the Kwena of Ramorulane and the Hurutshse of Molokomme, after the latter were defeated at Senta Hill and Swartkop (north of Thutlwane). Groups that voluntarily joined the Langa were the Koni of Masenya and Puka; the Tlôkwa of Pila; the people of Tshokwe and the Koni of Seema.

When Thulare of the Pedi undertook his great expedition up the Steelpoort River at the end of the 18th century, the move did not affect the Langa Ndebele. When Mzilikazi moved through Mpumalanga and the Bankeveld during the early 19th century, groups such as the people of Mabuela became dislocated and occupied mountains in the area.

When he was old, Mapela moved his village to **Fothane Hills** (Moordkopje) where he died in 1825. Maleya (a son of Mapela by a minor wife) ruled until Mankopane (the rightful heir) ousted him. Maleya fled to **Magagamatala** on Ruigtevlei 710LR but ruled from **Ditlotswana** hills.

Magagamatlala is a high flat-topped mountain with steep cliffs. On 14 April 1858 this stronghold was attacked by a punitive expedition sent by the Voortrekkers and 800 of Mankopane's subjects were killed. (This is known as the war of 'Nterekane' or the 'War of Maruputlase'). After the Langa's defeat, the Mankopane settled on **Thutlwane** Hill (Kromkloof 744 LR). The first mission stations of the Berlin Missionary Society were established in Langa country in 1867.

Other events were the following:

- The Langa expedition in 1837 aimed to expedite Mzilikazi's departure from what is today the North-West Province into Botswana.
- The Langa (and Kekana) were involved in the massacre of Voortrekker parties and the siege of the Makapans Caves in 1854.
- The Langa Ndebele (Lamola clan) scattered the copper miners of Mussina (Messina) with whom they bartered copper shortly before 1854.
- The Langa subjugated the Bididi (Songwana) until 1890, exacting heavy tribute from this clan.

The second encounter between the Voortrekkers and the Langa took place in 1868. At the time, the Langa were in an alliance with the Kekana Ndebele of Mogemi. Mogemi acted as regent for Mankopane. While the Boers besieged **Sefakaulo** Hill where Mogemi lived, Mankopane raided white farmers and outposts. The Voortrekkers attacked Mankopane on 12 June 1868 at **Thutlwane** and raided large numbers of cattle and small stock, but they could not take the highest part of the mountain where Mankopane's headquarters were. The Boers could also not achieve much success with their raids on Mogemi's mountain fortress. The Voortrekkers then evacuated Potgietersrus (Jackson 1982, Bergh 1998).

Mankopane died on 30 May 1877 and was buried in his cattle kraal on the mountain **Thutlwane**. Masebe III was proclaimed chief on 3 June 1877. Sporadic wars continued between the Langa and the Kekana chiefdoms from 1883 to October 1886, when President Paul Kruger summoned the two chiefs before him.

After the death of Masebe III on 4 May 1890, a succession dispute split the tribe into two sections, namely the Ndebele of Bankenberg and the Ndebele of Hans Langa. Hans Langa became chief of the southern portion and Bankenberg of the northern portion. As the ancient grounds of Mapela (**Fothane Hill**) fall in the southern portion, this section of the Langa became known as the Bagamapela.

The Ledwaba/Maune Ndebele clans, who are related to the Langa-Ndebele, live in the Bergzicht-Kalkspruit and Mašašane townships in the south-eastern part of the Eskom Project Area, near the proposed sites for the Mokopane Substation. The Witkoppes

Mountains (Thaba Tšweu) near the Witkop Substation were also occupied by clans of the Langa Ndebele during the 17th century to the 19th century. According to oral tradition they lived here for four successive generations under the leadership of Masebe I, Mapuso, Podile and Masebe II. A concentration of stone walled sites is located in a southern poort of this mountain range (Van Warmelo 1930, Jackson 1982, Esterhuysen, 2008).

The colonial towns of Potgietersrus (Mokopane) and Pietersburg (Polokwane) are situated to the north of the Eskom Project Area. After the Voortrekker leaders Hendrik Potgieter and Andries Potgieter were reconciled in 1852, the former established a town at Makapanspoort, between the Waterberg and the Strydpoort Mountains, which he named 'Vredenburg' ('town of peace') to commemorate the reconciliation. The town was later renamed after Piet Potgieter (who was killed during the siege of the Makapans Caves in 1854) and was called Potgietersrus. Because of fever and trouble with the Ndebele, the town was abandoned and deserted for about twenty years after 1868, but after 1890 it was re-established (Bergh 1998).

Historical beacons in the area include a cluster of Ana Trees north-west of Mokopane where the explorer and missionary Dr. D. Livingstone once camped under the canopy of these trees. Commandant-General Piet Potgieter who was killed at Makapansgat was buried in the municipal grounds. A monument commemorating the Ndebele's murder of Voortrekker families was erected along the R101 near the entrance to Mokopane. The Percy Five, Ntabeni and Welgevonden Nature Reserves occur in the general area. The Arend Dieperink Museum houses an extensive collection of Voortrekker memorabilia and an aloe garden with 4 000 specimens representing more than 200 species (Erasmus 2003).

7.2 Brief outline of prehistory and history

Several earlier heritage impact assessment studies have been done in the region where the proposed Eskom Akanani Project is located (see Part 13, 'Bibliography relating to

earlier heritage studies'). The main types and ranges of heritage resources which were recorded in the project area include:

- At least one Stone Age site with Middle Stone Age (MSA) artefacts in the Northern Brabant shelter to the north of the current project area.
- Numerous stone walled sites such on hills and along slopes of hills towards the Bankeberg in the north. These sites date from the prehistorical and historical period and many of these sites can historically be linked with the Langa Ndebele.
- Remains from the recent past some of which may be older than sixty years. These remains mostly comprises of disintegrated dwellings which were constructed with stone and mud and which were elongated and square in planform indicating their recent origins. Many of these houses were occupied by local Langa Ndebele people but also by migrant workers who moved to Mokopane to work in the platinum, chrome and tin mines which were established in the region during the first half of the 20th century. Although these remains may be part of a larger cultural and historical landscape most of these remains can be considered of low significance.

8 THE PHASE I HERITAGE IMPACT ASSESSMENT

8.1 The field survey

The field survey for the proposed Eskom Akanani Project revealed the following characteristics about the project area.



Figures 5 & 6 – Large pieces of land near the proposed Akanani Substation have been disturbed as a result of contractors’ activities near the edge of the Magalakwena open cast platinum mine (above and below).





Figure 7– Large tracks of land in the western part of the Eskom project area were used for the Mapela agricultural scheme in the past (above).



Figure 8– A dense vegetation cover occurs along the banks of the Witrivier where the longest stretches of both Alternative 01 and Alternative 02 will run between the Borutho and Akanani Substations (above and below).

8.2 Types and ranges of heritage resources

The Phase I HIA study for the Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the Project Area, namely:

- Definite graveyards and possible graves and graveyards.
- Remains from the recent past some of which may be older than sixty years.

All these heritage resources were geo-referenced and mapped (Figure 9; Tables 1 & 2). The significance of the heritage resources is indicated (Tables 1, 2, 3 & 4) as well as the significance of any impact on these heritage resources (Tables 7 and 8).

The Phase I HIA study is now discussed and illuminated with photographs.

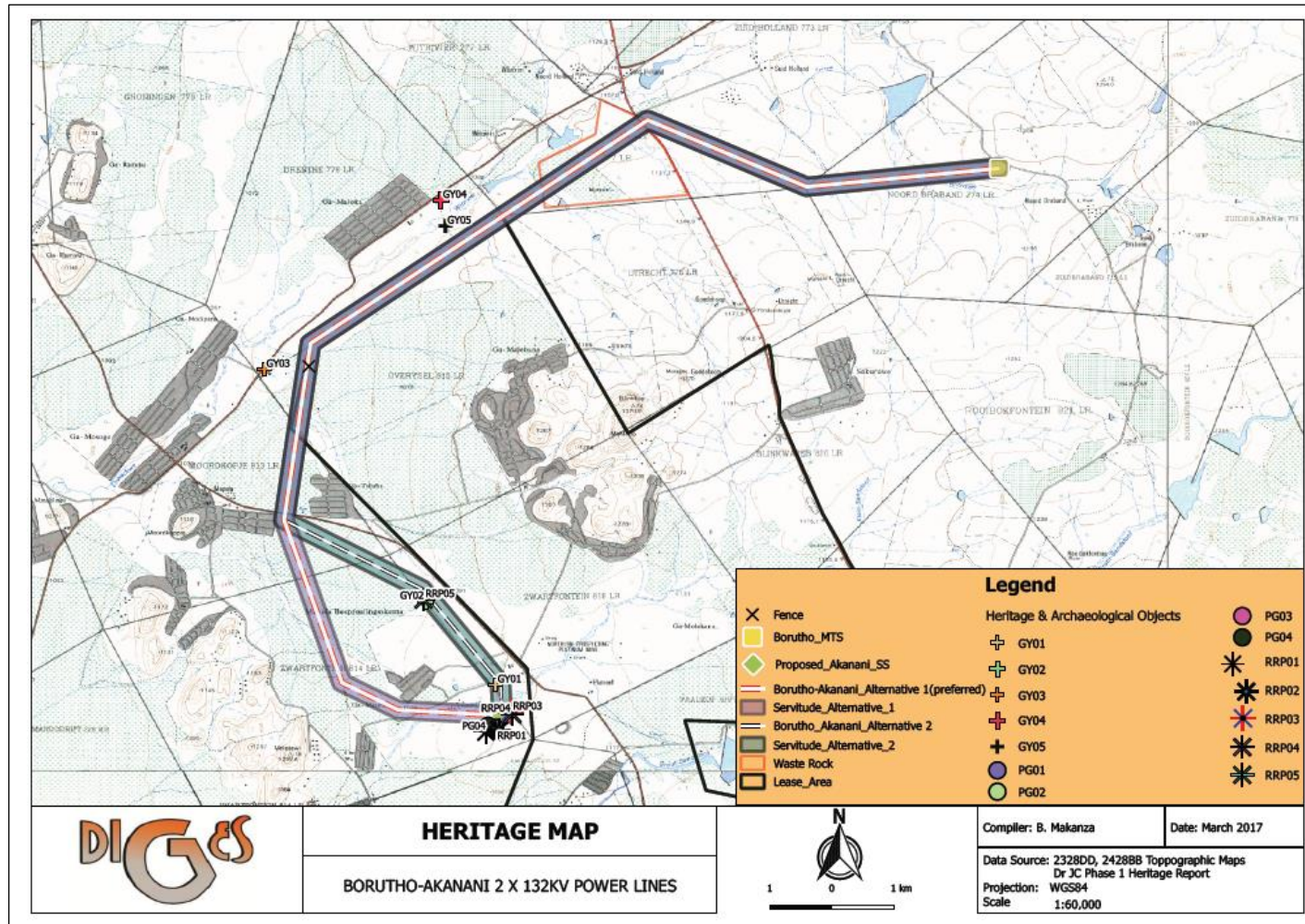


Figure 9- The Eskom Akanani Project near the Magalakwena Platinum Mine north-west of Mokopane in the Limpopo Province. Note the presence of definite and possible graveyards and graves in and near the Eskom project area (above).

8.2.1 Graveyards and graves

Graveyards and graves were divided into two categories, namely definite graveyards and graves and possible graveyards and graves. Although both categories together comprises a substantial number of graveyards and graves only GY02 in the category definite graveyards and graves may be influenced by the proposed Eskom Akanani project.

8.2.1.1 Definite graveyards and graves

The following definite graveyards and graves were observed in and near the Eskom project area, namely:

8.2.1.1.1 Graveyard 01

This large cemetery is located near the south-eastern corner of the village of Ga Masenya. It holds a formidable number of graves and is currently still being used. It will not be affected by the proposed Eskom Akanani Project. It incorporates graves older and younger than sixty years.



Figure 10- GY01 is a large cemetery which is located at the south-eastern corner of the village of Ga Masenya where it will not be affected by any of the alternatives for the proposed Eskom Akanani Project (above).

8.2.1.1.2 Graveyard 02

GY02 comprises two graves which are both decorated with granite headstones and trimmings. More undecorated graves may occur as this graveyard is associated with dilapidated stone walls and other remains from the more recent past. GY02 belongs to the Mputla family and is established at the base of a small kopje. It incorporates a grave which is older than sixty years. The inscriptions on the granite headstones read as follow:

- 'Malose Johannes Mputla ke wa *1902 †29-04-1961 Robala ka khutso mokowe'
- 'Tsetsengwa Raisibe Joyce Mputla ke wa 1910 Ohlokofetso ka 23-09-1945 Robala ka khutso'



Figure 11- The graveyard of the Mputla family next to a small kopje may be affected by Alternative 02 for the proposed Eskom Akanani Project (above).

8.2.1.1.3 Graveyard 03

This large cemetery (GY03) is located in the village of Ga Maloka. GY03 holds a high number of graves is still in use but will not be influenced by the Eskom Akanani Project.



Figure 12- GY03 is located in the village of Ga Maloka where it will not be affected by the Eskom Akanani Project (above).



Figure 13- GY04 (Phafola) is located opposite the village of Ga Maloka in open veld where it will not be affected by the two alternatives for the proposed Eskom Akanani Project (above).

8.2.1.1.4 Graveyard 04

This large cemetery (Phafola, GY04) is located opposite the village of Ga Maloka. It holds a high number of graves and the graveyard is still in use. It will not be influenced by the Eskom Akanani Project.

8.2.1.1.5 Graveyard 05

GY05 comprises two graves which are located near the eastern shoulder of the dirt road that runs across the Witrivier. The two graves are demarcated with stones and hold no headstones with inscriptions.



Figure 14- GY05 comprises two graves which are demarcated with stones. This graveyard will not be affected by the proposed alternatives for the Eskom Akanani Project (above).

8.2.1.2 Possible graveyards and graves

A number of possible graveyards and graves occur near the proposed Akanani Substation. These graveyards and graves which have been identified by contractors in the past may not be graves but merely the disintegrated remains from dwellings from the

past. The exception may be Possible Grave 04 (PG04). These possible graveyards and graves include the following:

8.2.1.2.1 Possible grave 01

PG01 is marked by upright stones demarcating an elliptical area. The dilapidated remains of residences also occur near the grave and it is possible that the grave merely may be part of residential remains from the more recent past.



Figure 15- A circle with stones outline the presence of Possible Grave 01 (above).

8.2.1.2.2 Possible Grave 02

It is not unequivocally clear if Possible Grave 02 (PG02) actually represents a grave or whether it merely comprises a heap of stones. This feature is represented by a heap of stones which amongst other include a lower grinding stone. It is therefore likely that this stone feature may cover the remains of a woman.

8.2.1.2.3 Possible Grave 03

Possible Grave 03 (PG03) is also demarcated with upright stones.



Figure 16- Possible Grave 02 (PG02) comprises a heap of stones with a lower grinding stone which may cover the remains of a woman (above).



Figure 17- Possible Grave 03 (PG03) is demarcated with stones (above).

8.3.4 Possible Graveyard 04

PG04 most likely comprises a small graveyard. It incorporates the remains of at least four individuals. The four graves are demarcated with upright stones. The graveyard is inconspicuous as it occurs in tall grass. Consequently no photograph is available for PG04. A metal sign post with the following barely decipherable inscription is nailed on the trunk of a tree next to the graveyard, namely: ' Zone 1. Mahwelereng Jackson?'

8.2.2 Remains from the recent past

Remains dating from the recent past consisting of disintegrated dwellings some associated with possible graves occur near the proposed Akanani Substation.



Figure 18- Remains from the recent past consisting of the disintegrated stone walls of a square dwelling which serves as a diachronic marker, namely the dwelling dates from the recent past (above).

These remains mainly comprise of upright stones outlining the foundations of homes or the boundaries of homesteads. Most of these dwellings were square or elongated in ground plan indicating their recent origins and identity.

These household remains are also associated with 'modern' rubbish such as tin plate or pieces of glass.

The remains from the recent past may in many cases be confused with graves therefore their identification as possible graves outlined above. Some of the remains from the recent past therefore are in some instances seen as possible graves and *vice versa*.



Figure 19- Remains from the recent past consisting of household rubble. Stones and a heap of clay used to be part of a dwelling which was constructed with soil and stones (above).

8.3 Tables

Table 1- Coordinates for definite and possible graveyards and graves and their rating significance (below).

Definite graveyards and graves	Coordinates	Significance
GY01. Graveyard in the village of Ga Masenya	23° 59 13.68s 28° 53 34.79e'	HIGH
GY02. Graveyard of the Mputla family	23° 58.432' 28° 52.912'	HIGH
GY03. Graveyard in the village of Ga Maloka	23° 56.218' 28° 51.375'	HIGH
GY04. Graveyard opposite the village of Ga Maloka (Phafola)	23° 54.605' 28° 53.058'	HIGH
GY05. Two graves next to dirt road	23° 54.850' 28° 53.101'	HIGH
Possible graveyards and graves	Coordinates	Significance
PG01. Stone circle near remains from the recent past	23° 59 39.5' 28° 53 34.5'	HIGH

PG02. Stone cairn with lower grinding stone near remains from the recent past	23° 59 39.0' 28° 53 34.3'	HIGH
PG03. Stone circle near remains from the recent past	23° 59 38.2' 28° 53 34.4'	HIGH
PG04. Four graves demarcated with stones near remains from the recent past.	23° 59 37.1' 28° 53 30.5'	HIGH

Table 2- Coordinates for remains from the recent past and their rating significance (below).

Remains from the recent past	Coordinates	Significance
RRP01. Scattered stone rubble and soil heap (near PG01)	23° 59 39.5's 28° 53 34.5'e	Med-low
RRP02. Stone rubble and hump of soil (near stone circle/PG03)	23° 59 38.2's 28° 53 34.4'e	Med-low
RRP03. Scattered stones and indications of soil	23° 59 29.165' 28° 53 43.53'	Med-low
RRP04. Scattered stone rubble and soil hump	23° 59 30.46's 28° 53 44.22'e	Med-low
RRP05. Stone rubble and soil heap	23° 58 24.845's 28° 52 53.47'e	Med-low

9 THE SIGNIFICANCE, POSSIBLE IMPACT ON AND MITIGATION OF THE HERITAGE RESOURCES

9.1 The significance of the heritage resources

Some of the heritage resources may be affected by the proposed Eskom Akanani Project. Consequently, the significance of the heritage resources have to be determined as well as the significance of the impact on the heritage resources. Mitigation measures are outlined for those heritage resources which may be impacted by the Eskom Akanani Project.

9.1.1 Graveyards and graves

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 1). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

9.1.2 The significance of the remains from the recent past

Some of these remains are older than sixty years and therefore are protected by the National Heritage Resources Act (No 25 of 1999) (Table 2).

The historical remains are rated as of medium to low significance. This rating is based on the use of two rating (grading) schemes, namely:

- A scheme of criteria which qualifies places and objects as part of the national estate as they have cultural significance or other special value (outlined in Section 3 of the NHRA [Act No 25 of 1999] (see Box 1) (Table 3).

- A field rating scheme according to which heritage resources are graded in three tiers (levels) of significance based on the regional occurrence of heritage resources (Table 4) (Section 7 of the NHRA [Act No 25 of 1999]).

9.1.2.1 Rating criteria to qualify as part of the national estate

The NHRA (No 25 of 1999) 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, (also see Box 1):

- **Its importance in/to the community, or pattern of South Africa's history;**
- Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- **Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;**
- Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- Sites of significance relating to the history of slavery in South Africa.

The highlighted criteria reflect aspects of the social, historical, spiritual and scientific significance (research, use and application, e.g. in tourism industry) of the remains dating from the recent past some of which may be older than sixty years. The significance of the remains from the recent past some of which may be older than sixty years is graded as low to medium in terms of their part of the national estate (Table 3).

Table 3- Rating the significance of the remains from the recent past some of which may be older than sixty years as part of the national estate (below).

	Significance rating for remains from the recent past some of which are older than sixty years as part of the National Estate		
	Low	Medium	High
Historical significance	X		
Social significance		X	
Spiritual significance		X (where graves may occur)	
Scientific significance (research, use, application, e.g. in tourism industry)	X		

9.1.2.2 Field rating scheme for heritage resources

Grading of heritage resources remains the responsibility of heritage resources authorities. However, in terms of minimum standards SAHRA requires that heritage reports include field ratings in order to comply with Section 38 of the NHRA (No 25 of 1999). The NHRA (No 25 of 1999, Section 7) provides for a three-tier grading system for heritage resources. The field rating process is designed to provide a qualitative and quantitative rating of heritage resources. The rating system distinguishes three categories of heritage resources:

- Grade I heritage resources hold qualities so exceptional that they are of special national significance.
- Grade II heritage resources hold qualities which make them significant within the context of a province or a region.
- Grade III heritage resources are of local significance and in some instances worthy of conservation, i.e. they are generally protected in terms of Sections 33 to 37 of the NHRA (No 25 of 1999).

Table 4- Field rating (grading) for remains dating from the recent past some of which may be older than sixty years (below).

Field rating	Grade	Significance	Recommended mitigation
National significance	Grade 1	High significance	Nominate national site. Conservation
Provincial significance	Grade 2	High significance	Nominate provincial site. Conservation
Local significance	Grade 3A	High significance	Conservation. Mitigation not advised.
Local significance	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected (GP.A)	-	Medium to High significance	Mitigation before destruction
Generally Protected (GP.B)	-	Medium significance	Recording before destruction
Generally Protected (GP.C)	-	Low significance	Destruction

According to the highlighted field rating scheme the historical remains can be rated as of medium to low significance (Table 4).

9.2 Possible impact on the heritage resources

The Eskom Project Area comprises the footprint of Alternative 01 and Alternative 02 for the 2x132kV power lines from Boruto MTS to Akanani Substation, the construction of the proposed 100m x 100m Akanani Substation (plus 10m buffers) and access road with a width of 6.5m.

Although some of the heritage resources fall within the 300m buffer or corridor which was surveyed for the power lines and also occur near the footprint of the Akanani Substation none of these heritage resources will be directly impacted by the proposed

Eskom Akanani Project. The distances between the graveyards, possible graves and the remains from the recent past and the power lines and substation with access road are indicated in Tables 5 & 6.

Table 5- Distances between the definite graveyards and possible graves and graveyards and the Eskom Akanani power lines and substation (below).

Definite graveyards	Coordinates	Distance from Substation	Distance from Alt 01	Distance from Alt 02
Masenya village (GY01)	23° 59 12.11s 28° 53 28.97e'	>500m	>500m	78m. Also located in Masenya village
Mputla family (GY02)	23° 58.432's 28° 52.912'e	>500m	>500m	83m. Tar road also separate GY02 from power lines
GY03. In Ga Maloka village	23° 56.218's 28° 51.375'e	>500m	>500m	>500m
Opposite Ga Maloka/Phafola village (GY04)	23° 54.605's 28° 53.058'e	>500m	>500m	>500m
Two graves (GY05)	23° 54.850's 28° 53.101'e	>500m	388m	>500m
Possible graveyards and graves	Coordinates	Distance from substation	Distance from Alt 01	Distance from Alt 02
PG01. Stone circle near remains from the recent past	23° 59 39.5' 28° 53 34.5'	276m	258m	284m
PG02. Stone cairn with lower grinding stone	23° 59 39.0' 28° 53 34.3'	263m	242m	280m
PG03. Stone circle near remains from the recent past	23° 59 38.2' 28° 53 34.4'	245m	233m	260m
PG04. Four possible graves demarcated with stones	23° 59 37.1' 28° 53 30.5'	284m	196m	296m

Table 6- Distances between the remains from the recent past and the Eskom Akanani power lines and substation (below).

Remains from the recent past	Coordinates	Distance from substation	Distance from Alt 01	Distance from Alt 02
RRP01. Scattered stone rubble and soil heap (near PG01)	23° 59 39.5's 28° 53 34.5'e	280m	262m	291m
RRP02. Stone rubble and hump of soil (near stone circle/PG03)	23° 59 38.2's 28° 53 34.4'e	245m	233m	260m
RRP03. Scattered stones and indications of soil	23° 59 29.165' 28° 53 43.53'	154m	166m	156m
RRP04. Scattered stone rubble and soil hump	23° 59 30.46's 28° 53 44.22'e	163m	175m	164m
RRP05. Stone rubble and soil heap	23° 58 24.845's 28° 52 53.47'e	>500m	>500m	93m. Also separated from power lines by a tar road

9.3 The significance of the impact on the heritage resources

9.3.1 The significance of the impact on the graveyards and graves

None of the definite or possible graveyards and graves will be directly impacted by the proposed Eskom Akanani Project. The significance of any possible impact on the definite and possible graveyards and graves therefore is very low (Table 7).

Table 7: The significance of potential impacts on the definite and possible graveyards and graves (below).

Definite graveyards and graves							
Grave-yard	Probability of impact	Magnitude of impact	Duration of impact	Scale	Significance points	Significance of impact	Significance after mitigation
GY01	1	2	1	1	2	Very low	Not applicable
GY02	1	2	1	1	2	Very low	Not applicable
GY03	1	2	1	1	2	Very low	Not applicable
GY04	1	2	1	1	2	Very low	Not applicable
GY05	1	2	1	1	2	Very low	Not applicable
Possible graveyards and graves							
PG01	1	2	1	1	2	Very low	Not applicable
PG02	1	2	1	1	2	Very low	Not applicable
PG03	1	2	1	1	2	Very low	Not applicable
PG04	1	2	1	1	2	Very low	Not applicable

9.3.2 The significance of the impact on the remains from the recent past

The significance of the impact on the remains from the recent past some of which may be older than sixty years will be of low significance (Table 8).

Table 8: The significance of potential impacts on remains from the recent past some of which may be older than sixty years is low (below).

Remains from the recent past	Probability of impact	Magnitude of impact	Duration of impact	Scale	Significance points	Significance of impact	Significance after mitigation
	1	2	1	1	2	Very low	Not applicable

9.4 Mitigating the heritage resources

9.4.1 Mitigating the graveyard impact

None of the definite or possible graveyards and graves will be affected by the proposed Akanani Project. However, it is recommended that the possible grave sites be demarcated with red cautionary tape before construction commences in order to safeguard these sites from possible accidentally damage caused by construction

personnel and their vehicles. Signposts with inscriptions 'Beware and avoid. Possible grave site' should be erected at the barricaded sites.

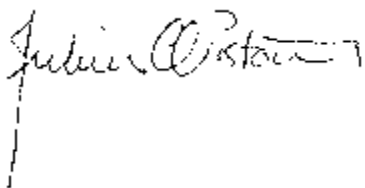
9.4.2 Mitigating the impact on the remains from the recent past

The remains from the recent past some of which may be older than sixty years have low significance and therefore need no mitigation measures.

Summary:

Both Alternative 01 and Alternative 02 can be used for the construction of the 132kV power lines. A walk-through (pedestrian) survey of the chosen power line corridor must be conducted considering the number of graves and graveyards which occur in the general area. The pedestrian survey must be done after the final alignment for the power line has been established and after the power line has been pegged before construction commences.

If any heritage resources of significance is exposed during the Eskom Akanani 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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10 CONCLUSION AND RECOMMENDATION

The Phase I HIA study for the Project Area revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the Project Area, namely:

- Definite graveyards and possible graves and graveyards.
- Remains from the recent past some of which may be older than sixty years.

All these heritage resources were geo-referenced and mapped (Figure 9; Tables 1 & 2). The significance of the heritage resources is indicated (Tables 1, 2, 3 & 4) as well as the significance of any impact on these heritage resources (Tables 7 and 8).

The significance of the heritage resources

Some of the heritage resources may be affected by the proposed Eskom Akanani Project. Consequently, the significance of the heritage resources have to be determined as well as the significance of the impact on the heritage resources. Mitigation measures are outlined for those heritage resources which may be impacted by the Eskom Akanani Project.

Graveyards and graves

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 1). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds.

Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

The significance of the remains from the recent past

Some of these remains are older than sixty years and therefore are protected by the National Heritage Resources Act (No 25 of 1999) (Table 2).

The historical remains are rated as of medium to low significance. This rating is based on the use of two rating (grading) schemes, namely:

- A scheme of criteria which qualifies places and objects as part of the national estate as they have cultural significance or other special value (outlined in Section 3 of the NHRA [Act No 25 of 1999] (see Box 1) (Table 3).
- A field rating scheme according to which heritage resources are graded in three tiers (levels) of significance based on the regional occurrence of heritage resources (Table 4) (Section 7 of the NHRA [Act No 25 of 1999]).

The significance of the remains from the recent past some of which may be older than sixty years is graded as low to medium in terms of their part of the national estate (Table 3).

According to the field rating scheme the historical remains can be rated as of medium to low significance (Table 4).

Possible impact on the heritage resources

The Eskom Project Area comprises the footprint of Alternative 01 and Alternative 02 for the 2x132kV power lines from Boruto MTS to Akanani Substation, the construction of the proposed 100m x 100m Akanani Substation (plus 10m buffers) and access road with a width of 6.5m.

Although some of the heritage resources fall within the 300m buffer which was surveyed for the power lines and also occur near the footprint of the Akanani Substation none of these heritage resources will be directly impacted by the proposed Eskom Akanani Project. The distances between the graveyards, possible graves and the remains from the recent past and the power lines and substation with access road are indicated in Tables 5 & 6.

The significance of the impact on the heritage resources

The significance of the impact on the graveyards and graves

None of the definite or possible graveyards and graves will be directly impacted by the proposed Eskom Akanani Project. The significance of any possible impact on the definite and possible graveyards and graves therefore is very low (Table 7).

The significance of the impact on the remains from the recent past

The significance of the impact on the remains from the recent past some of which may be older than sixty years will be of low significance (Table 8).

Mitigating the graveyard impact

None of the definite or possible graveyards and graves will be affected by the proposed Akanani Project. However, it is recommended that the possible grave sites be demarcated with red cautionary tape before construction commences in order to safeguard these sites from possible accidentally damage caused by construction personnel and their vehicles. Signposts with inscriptions 'Beware and avoid. Possible grave site' should be erected at the barricaded sites.

Mitigating the impact on the remains from the recent past

The remains from the recent past some of which may be older than sixty years have low to medium significance and therefore need no mitigation measures.

Summary:

Both Alternative 01 and Alternative 02 can be used for the construction of the 132kV power lines. A walk-through (pedestrian) survey of the chosen power line corridor must be conducted considering the number of graves and graveyards which occur in the general area. The pedestrian survey must be done after the final alignment for the power line has been established and after the power line has been pegged before construction commences.

If any heritage resources of significance is exposed during the Eskom Akanani 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 notified 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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