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ESKOM

A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR ESKOM'S PROPOSED NEW 132kV POWER LINE RUNNING BETWEEN THE PARADISE-T AND MUSINA SUBSTATIONS IN THE LIMPOPO PROVINCE OF SOUTH AFRICA

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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 the new proposed 132kV power line running between the Paradise-T and Musina Substations in the Limpopo Province of South Africa. The aims with the 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 or near the Eskom Project Area and, if so to determine the significance of these heritage resources, and
- To make recommendations regarding the possible mitigation and management of significant heritage resources that may be affected by the construction of the new power line.

The Phase I HIA study for the proposed new 132kV power line running between the Paradise-T and Musina Substations 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 or near the Eskom Project Area, namely:

- A site with stone tools (Site SA01) in and near Eskom's proposed new power line corridor on the farms Oorwinning 713 and Windhoek 649.
- A site dating from the Historical Period (Site RP01) or from the recent past on Windhoek 649.
- Two graveyards (GY01 and GY02) in and near the proposed new power line corridor on Windhoek 649.

These heritage resources in or near Eskom's proposed new power line were geo-referenced and mapped (Figure 1; Table 1). The significance of the heritage resources were indicated by using criteria relating to the National Heritage Resources Act (No 25 of 1999) and criteria referring to the particular type of heritage resource under discussion.

The significance of the heritage resources

The Stone Age site

Stone Age site qualify as archaeological sites which are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). However, Site SA01 along Part AB cannot be considered to be of high significance due to the following criteria:

- Site SA01 is associated with a random scatter of stone tools that also occur elsewhere along the northern foothills of the Soutpansberg. More Stone Age sites therefore exist where the proposed new power line will be constructed. An impact on Site SA01 would be limited to a few individual stone tools which are part of larger assemblages which occur in a wide area near the power line corridor.
- The majority of sites that were recorded date from the Middle Stone Age and perhaps from the First Intermediate Period (Late Acheulian or Sangoan culture). There are consequently a large number of stone tools available from at least one or two cultural periods and not necessarily from several consecutive time periods of the Stone Age. An impact on one or two cultural periods is less significant than an impact on a sequence of cultural periods representing a long period of time.
- The sites have been exposed by erosion and consequently are not sites with undisturbed archaeological contexts any longer. Sites with disturbed archaeological contexts have less significance than sites with undisturbed archaeological contexts.

The site from the Historical Period and/or the recent past

Site RP01 probably dates from the Historical Period and/or from the more recent past. Historical sites which are older than sixty years are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). However, this site cannot be considered to be of high significance due to the following criteria:

- Site RP01 lacks substantial surface material or (deep) archaeological deposits which would have enhanced the research potential of the site.
- Sites dating from the recent past are more common than sites dating from the distant past as they were not subjected to long periods of natural decay. It is therefore possible that similar sites dating from the more recent past may occur in the Eskom Project Area making Site RP01 not necessarily unique.
- The site was partly damaged when a two-track road was built through the eastern perimeter of the site (parallel with the existing power line).

The graveyard

Only GY01 will be affected by Eskom's proposed new power line. All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes 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).

Mitigating the heritage resources

Mitigation measures are outlined for those heritage resources that may be affected by the construction and maintenance of the new power line.

The stone tools

The few stone tools that may be affected by the development project are indestructible and will merely be re-deposited near the proposed new power line.

Consequently, no mitigation measures are required for the stone tools.

The site from the Historical Period and/or recent past

Eskom's pylons need not to be erected within the perimeters of Site RP01 which is located under Eskom's existing power line. The proposed new power line will be constructed near Site's RP01 eastern perimeter. Site RP01 therefore needs not to be affected by the construction of the new power line - particularly if the site is demarcated and highlighted with red emergency tape when the construction of the new power line is undertaken.

The graveyard

GY01 need not to be affected by the construction of the new power line as the graveyard can be left *in situ*. The graveyard can also be avoided as the proposed new power lines will be constructed overhead (above) the cemetery and by positioning the pylons closest to the graveyard at safe distances on opposite sides (ends) of the graveyard. This graveyard merely contains seven graves that are does not cover a large surface area as they are clustered together.

Stretches of the proposed new power line corridor were inaccessible or difficult to follow due to the fact that these stretches of the power line were located at considerable distances from accessible roads or ran along privately owned farms where owners were not available to provide access to these parts of the power lines. It is therefore 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 construction of the new power line 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.

CONTENTS

1 INTRODUCTION

Eskom intends to construct a 132kV power line running from the Paradise T Substation north of the Soutpansberg to the Musina Substation in the Limpopo Province of South Africa. The proposed new power line will be approximately 40km long and will run in an existing Eskom servitude parallel with an existing 132kV power line. This document therefore 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 running between Paradise-T and Musina Substations in the Limpopo Province of South Africa.

Parts of the Limpopo Province, such as Polokwane (Pietersburg), Mokopane (Potgietersrus), Phalaborwa, the Blouberg Mountains, Makhado (Louis Trichardt), the Steelpoort valley and areas to the north and south of the Soutpansberg have been explored for archaeological remains in the past. These explorations have shown that the Limpopo Province has a rich archaeological heritage comprised of remains dating from the prehistoric and the historical past.

Prehistoric and historical remains in the Limpopo Province therefore reflect the 'national estate' as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1).

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

The National Heritage Resources Act (No 25 of 1999) 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, Sec 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 TERMS OF REFERENCE

Eskom intends to establish a 132kV power line between the Paradise-T Substation north of the Soutpansberg and the Musina Substation in the Limpopo Province of South Africa. In order to comply with heritage legislation, Eskom requires knowledge of the presence, relevance and the significance of any heritage resources that may occur in or near the Eskom Project Area. 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 proposed new power line is built. Eskom 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 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 or near the Eskom Project Area and, if so to determine the significance of these heritage resources, and
- To make recommendations regarding the possible mitigation and management of significant heritage resources that may be affected by the construction of the new power line.

3 METHODOLOGY

This Phase I survey was conducted by means of consulting archaeological data bases; doing a survey with a vehicle and on foot; studying maps of the project area; doing a brief survey of literature and by means of consulting spokespersons living in certain parts of the project area.

3.1 Archaeological data bases

Archaeological data bases kept at institutions such as African Window and the South African Heritage Resources Authority (SAHRA) (Cape Town [national] and Polokwane [provincial]) was consulted to establish if any heritage resources of significance occur in or near the project area.

3.2 Survey with a vehicle and on foot

The Eskom Project Area was surveyed with a vehicle while selected spots which the archaeologist deemed necessary to investigate was surveyed on foot. The length of the proposed new power line, namely 120km made it impossible to survey the total length of the proposed new power line on foot.

3.3 Maps

Maps outlining the Eskom Project Area were studied (2229DD Wyllie's Poort; 2229DB Mopane; 2229 BD Kamkusi & 2230AA Musina; 1:50 000 topographical maps).

3.4 Survey of literature

A brief survey of literature relating to the pre-history and cultural history of the region was undertaken in order to contextualise the proposed new power line corridor (see Part 4, 'Contextualising the Eskom Project Area' and Part 7, 'Select Bibliography').

3.5 Limitations and assumptions

Stretches of the proposed new power line corridor were inaccessible or difficult to follow due to the fact that these stretches of the power line were located at considerable distances from accessible roads or ran along privately owned farms where owners were not available to provide access to these parts of the power lines. It is therefore possible that this Phase I HIA study may have missed heritage resources in the 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 construction of the new power line 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.

3.6 Some remarks on terminology

Terminologies that may be used in this report are briefly outlined in Box 2.

Box 2. Terminologies that may be used in this report

The Heritage Impact Assessment (HIA) referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage Resources Act, 1999 (Act No 25 of 1999) (See Box 1).

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.

The term '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 Louis Trichardt by the first Colonists who settled in this area after c. 1840.

The term 'relatively 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.

It is not always possible, based on observations alone, to distinguish clearly between archaeological remains and historical remains, or between historical remains and remains from the relatively recent past. Although certain criteria may help to make this distinction possible, these criteria are not always present, or, when they are present, they are not always clear enough to interpret with great accuracy. Criteria such as square floor plans (a historical feature) may serve as a guideline. However, circular and square floors may occur together on the same site.

The term 'sensitive remains' is sometimes used to distinguish graves and cemeteries as well as ideologically significant features such as holy mountains, initiation sites or other sacred places. Graves in particular are not necessarily heritage resources if they date from the recent past and do not have head stones that are older than sixty years. The distinction between 'formal' and 'informal' graves in most instances also refers to graveyards that were used by colonists and by indigenous people. This distinction may be important as different cultural groups may uphold different traditions and values with regard to their ancestors. These values have to be recognised and honored whenever graveyards are exhumed and relocated.

The term '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).

The term 'Late Iron Age' refers to the period between the 17th century and the 19th century and can therefore include the historical period.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the pre-historical, historical or the relatively recent past.

The term 'study area', or 'project area' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types of heritage resources in any given area.

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 bodies and the relocation of graveyards, etc. Phase II work may require the input of specialists and requires the co-operation and approval of SAHRA.

4 CONTEXTUALISING THE ESKOM PROJECT AREA

Eskom intends to construct a 132kV power line stretching across a distance of approximately 40km from the Paradise-Tee Substation towards the Musina Substation in Musina. The proposed new power line will run in an existing Eskom servitude parallel with an established 132kV power line from the Paradise-T Substation to the Musina Substation in the Limpopo Province of South Africa (Figure 1).

The following brief overview of the pre-historical, historical and cultural evidence will help to contextualize the Eskom Project Area.

4.1 The project area

The Eskom Project Area stretches from the north of the Soutpansberg across Mopane veld before entering an undulating mountainous area before running again across a flat area before entering the Musina Substation. The Paradise-Tee Substation is located near Masekwaspoort along the northern foot of the Soutpansberg while the Musina Substation is located in the town of Musina.

The Eskom Project Area is part of the Bushveldt whose elevation varies between 750m to 1 400m above sea level. Annual rainfall varies from 350mm in the west to just over 600mm in parts of the north-east whilst the rainfall on the Soutpansberg is more than 2 000mm in places. Summers are hot and winters comparatively mild while frost rarely occurs.

The Bushveldt is characterised by well-grassed plains which are punctuated with dense clusters of trees and tall savannah shrubs. The grasses are tall and rank and turn yellow and brown in winter. Trees and shrubs varies from acacia, combretum, karee and boekenhout in the south to the umbrella acacia, mopane, knobthorn,

leadwood, kiaat and tamboti further north. The Boabab dominates the far northern plains of the Bushveldt.

4.2 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 (this covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (this refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (the period from 22 000 years ago to 300 years ago).

These Stone Ages can be divided into different 'cultural' periods, each of which is characterised by specific hominids, artefact types and lifestyles. These cultural periods existed under different climatic conditions and did not necessarily occur in each of the different regions of South Africa at the same time.

The Late Stone Age is associated, amongst other things, with rock paintings and engravings done by the San, the Khoi Khoi and, in more recent times, by Negroid (Iron Age) farmers.

Numerous rock paintings have been recorded by researchers in the Soutpansberg whilst stone tools dating from the Early and Middle Stone Age have been discovered during this survey in the Eskom Project Area.

4.3 Iron Age remains

The Iron Age is associated with the first Bantu-Negroid agro-pastoralists who lived in semi-permanent villages and who practiced metal working during the last two millennia. The Iron Age is usually divided into the Early Iron Age (this covers

the 1st millennium AD) and the Later Iron Age (this covers the first 880 years of the 2nd millennium AD).

The Soutpansberg region is well known for the presence of large numbers of Iron Age sites which date from the Early Iron Age, the Early-Late Iron Age and the Late Iron Age. Many of the Early-Late Iron Age sites in the region can be related to ancient groups which became absorbed by the Venda whilst most of the Late Iron Age and Historical Sites can be associated with Venda clans.

The Early Iron Age site known as Klein Afrika which dated from AD300 used to exist on the farm Marius 732MS but has been destroyed by agricultural activities.

Stone walled sites dating from the Early-Late Iron Age or from the Late Iron Age do occur some distance from the Eskom Project Area. These include the stone walled sites on Verdun 535MS and Verulam 540MS as well as one of Eskom's existing 132kV power lines that has been constructed across a terraces stone walled site on Franshoek 726MS while terraces also occur on the farm Fenton 733MS where Eskom's power line runs along the N1.

4.4 The Historical Period

The two Voortrekker parties of Hans van Rensburg and Louis Trichardt reached the southern slopes of the Soutpansberg in 1836. As the two parties had quarreled along the way the Van Rensburg party moved eastwards in search of a route to Lourenço Marques (Maputo) in Mocambique.

Trichardt and his party, however, remained near the present site of Louis Trichardt from May 1836 to August 1837. They planted crops and explored the country northwards to Zimbabwe and eastwards in search of the lost Van Rensburg party.

In September 1837 Trichardt continued his search for a route to Delagoa Bay (Maputo), a harbor that would be free from British control. They reached their destination seven months later after two and a half months were spent on crossing the Drakensberg mountain range with nine wagons of which the back wheels were removed in order to slide down the Drakensberg escarpment.

The Voortrekker party of Hendrik Potgieter was the next to arrive in the Soutpansberg. This party of Boers came from the malaria infested Ohrigstad further to the south-east. The community flourished for a while. A church and fort were built and Portuguese merchants from Mocambique opened stores. The main merchandise was ivory. Potgieter died in 1852 and Stephanus Schoeman took over as commandant. He renamed the village Schoemansdal for himself in 1855. At that time there were 278 houses and approximately 1 800 residents. The village attracted an ever growing number of ivory hunters and traders who bartered with skins and ivory although gunrunning also grew in importance.

On 15 July 1867 the local Venda attacked the town and put it to the torch. The Voortrekkers fled to Pietersburg and Marabastad. During the next twenty years the territory remained in the hands of the Venda chief, Makhado. Mpefu, however, was defeated by the Zuid Afrikaansche Republiek (ZAR) close to where Louis Trichardt had pitched his first camp in 1836. The farms Bergvlei and Rietvlei, named for Louis Trichardt, were proclaimed in February 1899.

During the Anglo Boer War the British authorities removed the women and children from Louis Trichardt to safety in Pietersburg. The Venda now avenged their earlier defeats and razed the village to the ground. After the war the town was rebuild from scratch and was granted municipal status in 1934.

Heritage resources of significance in the larger Eskom Project Area include:

- The partly restored Schoemansdal open-air museum, 12 km to the west of Louis Trichardt was opened in 1933.

- Near the Schoemansdal Museum are San rock paintings.
- Fort Hendrina, an iron structure behind the municipal offices is one of three mobile forts that were used by the ZAR in skirmishes with local populations.
- The Ben Lavin Nature Reserve to the south of Makhado was established in 1976 to preserve antelope and other game indigenous to the area.
- The Albasini Dam is located 20km to the east of Makhado and is named for the Portuguese trader Jõao Albasini who bartered ivory from the Voortrekkers at Schoemansdal and transported it to Delagoa Bay.

5 THE PHASE I HERITAGE IMPACT ASSESSMENT STUDY

5.1 The various parts for the proposed new power line

Eskom's proposed new 132kV power line between the Paradise-T and Musina Substations in the Limpopo Province of South Africa was divided into the following parts that were subjected to a Phase I HIA study, namely (Figure 1):

- **Part AB: From the Paradise-Tee Substation to the turn-off to the Nzelele Dam:** Part AB runs in a northerly direction across the farm Overwinning 716 and then bends slightly to the north-east crossing the farm Windhoek 649MS before reaching the turn-off running to the Nzelele Dam in the east.
- **Part BC: Between the Nzelele Dam and Tshipise turn-offs:** Part BC runs in a northerly direction across the farms Bekaf 650MS, Juliana 647MS, Rissik 637MS, Fanie 578, Oom Jan 586 and 579, Groot Indaba 581, Buxton 575 and Scott 567 before reaching the Tshipise turn-off.
- **Part CD: From the Tshipise turn-off to Blaauwkop 514:** This part runs northwards across Scott 519, Van Heerden 519, Rampulana 515 and Blaauwkop 514. This part of the power line corridor is slightly undulating and is marked by Boabab and a variety of other trees.
- **Part DE: From Blaauwkop 514 to Verbaard 53:** Part DE runs further northwards across Blaauwkop 514, (crossing the tip of Grasplaas 98), Waterside 513, Waterkloof 96, Dorothy 254 to Verbaard 53. Stertch DE is mountainous. The power line runs through a narrow poort on Waterkloof 96 and Verbaard 53.
- **Part EF: From Verbaard 53 to Musina:** Part EF runs north-eastwards and then north-westwards across Verbaard 53, Pangbourne 52, Mondferland 51, Toynton 49 and the Musina townlands to Musina. Part EF initially runs across a level area on Verbaard 53 and then through a low mountain range on Pangbourne 52 before crossing the N1 in order to run across the flat plains to the town of Musina.

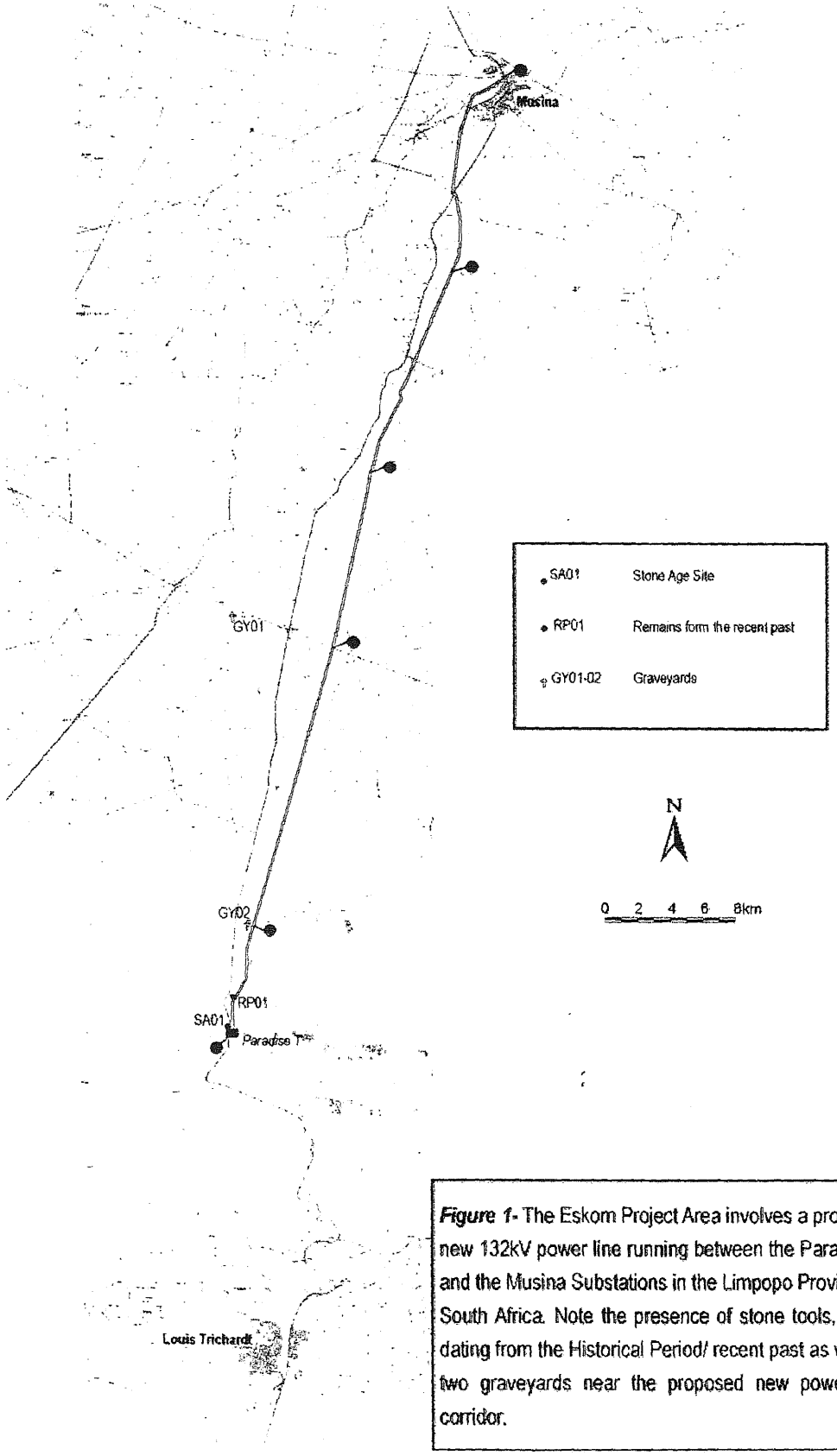


Figure 1- The Eskom Project Area involves a proposed new 132kV power line running between the Paradise-T and the Musina Substations in the Limpopo Province of South Africa. Note the presence of stone tools, a site dating from the Historical Period/ recent past as well as two graveyards near the proposed new power line corridor.

5.2 Types and ranges of heritage resources

The Phase I HIA study for the various parts of the proposed new 132kV Paradise-T to Musina power line corridor is now discussed and illustrated with photographs.

5.2.1 Part AB: From the Paradise-T Substation to the turn-off to the Nzelele Dam

Part AB runs in a northerly direction across the farm Overwinning 716 and then bends slightly to the north-east crossing the farm Windhoek 649MS before reaching the turn-off running to the Nzelele Dam in the east.

From south to north Part FG initially crosses a rocky rolling landscape followed by a sandy level plain through which the Mutambu River cuts from the west towards the east. This flat sandy plain is regularly flooded by the Mutambu River.

The following heritage resources were observed along Part AB, namely:

- Scattered stone tools (Site SA01) occur on a low dome-shaped hill near Eskom's existing power line near a small stream to the north of the Paradise-Tee Substation.
- The remains of a village dating from the recent past or possibly from the historical period occur underneath Eskom's power line (Site RP01). This village covers a circular area and is marked with a limited number of short lines of stone; two small dilapidated enclosures; a pile of stones; a limited number of potsherds and a grinding stone. The village was partly affected when Eskom's existing power line was built many years ago while a dirt road was built across the perimeter of the site. It seems as if this site may extend further towards the hill in the east.
- An informal graveyard (GY01) with at least seven graves close to Eskom's existing power line. One grave is covered with a granite tomb stone while

another six graves are covered with stones. The inscription on the tomb stone reads as follows: 'Murwamuila Madzhoni, Rest in peace'

- A formal graveyard (GY02) is located to the west of Eskom's existing power line and to the south of the Nzelele Dam's turn-off. This graveyard is demarcated with a low stone wall.

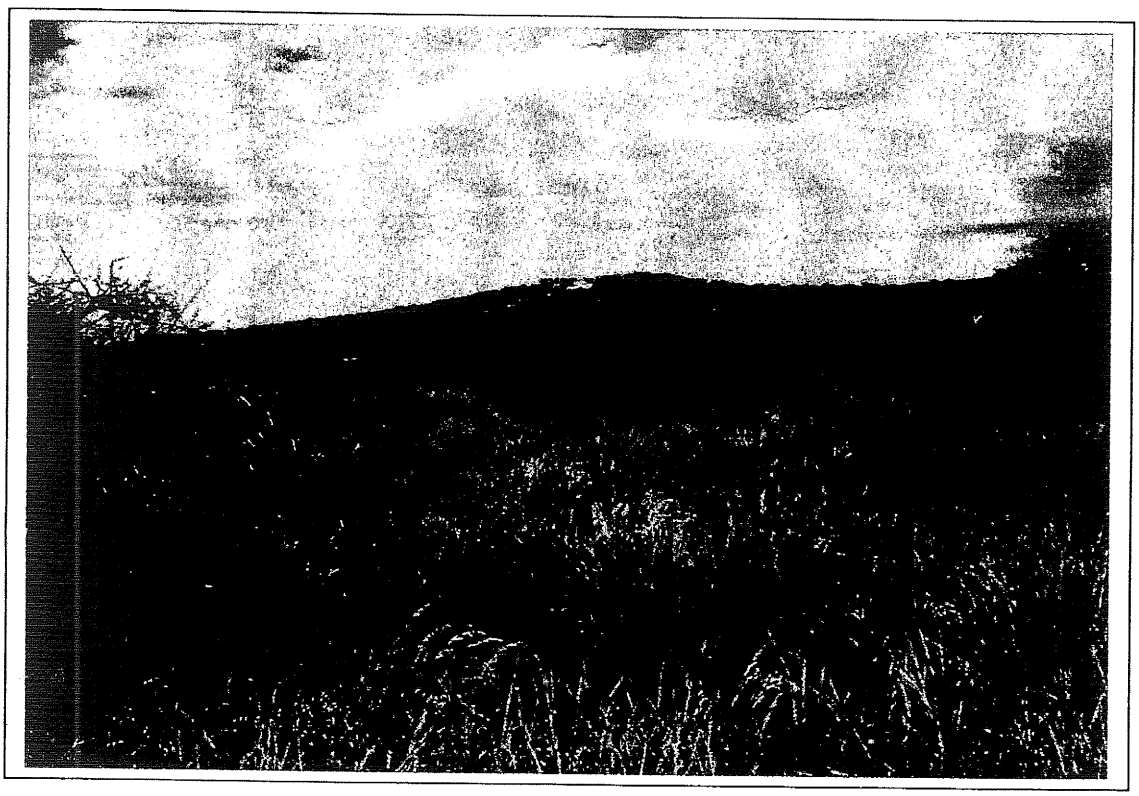


Figure 2- The remains of a village from the Historical Period or from the recent past (bald spot in foreground) (Site RP01) under Eskom's existing power line along Part AB (above).

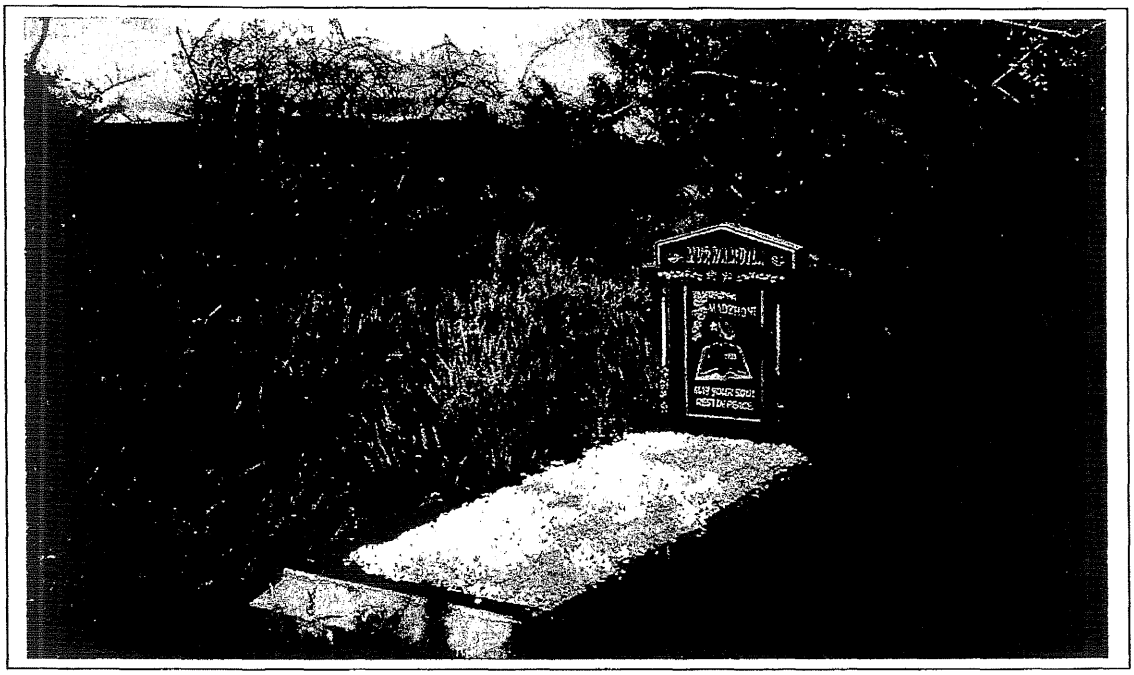


Figure 3- The grave of Murwamuila Madzhoni in GY01 close to Eskom's existing new power line corridor along Part AB (above).

5.2.2 Part BC: Between the Nzelele Dam and Tshipise turn-offs

Part BC runs in a northerly direction across the farms Bekaf 650MS, Juliana 647MS, Rissik 637MS, Fanie 578, Oom Jan 586 and 579, Groot Indaba 581, Buxton 575 and Scott 567 before reaching the Tshipise turn-off.

Part BC runs along a level corridor that is marked by loose scattered pieces of limestone rock.

A weathered sandstone ridge, drifting from the west to east, occurs to the east of Eskom's existing power line.

Figure 4- GY02 located to the west of Eskom's existing power line along Part AB (above).

5.2.3 Part CD: From the Tshipise turn-off to Blaauwkop 514

This part runs northwards across Scott 519, Van Heerden 519, Rampulana 515 and Blaauwkop 514.

Part CD of the power line corridor is slightly undulating and is marked by Boabab and a variety of other trees.

No heritage resources were observed along this part of the proposed new power line corridor.

5.2.4 Part DE: From Blaauwkop 514 to Verbaard 53

Part DE runs further northwards across Blaauwkop 514, (crossing the tip of Grasplaas 98), Waterside 513, Waterkloof 96, Dorothy 254 to Verbaard 53. Stretch DE is mountainous.

Part DE crosses numerous small non-perennial streams and also cuts through a narrow poort on Waterkloof 96 and Verbaard 53.

No heritage resources of significance were observed along this part.

Figure 5- Eskom's proposed new power line crossing mountainous terrain along Part DE (above).

5.2.5 Part EF: From Verbaard 53 to Musina

Part EF runs north-eastwards and then north-westwards across Verbaard 53, Pangbourne 52, Mondferland 51, Toynton 49 and the Musina townlands to Musina.

Part EF initially runs across a level area on Verbaard 53 and then through a low mountain range on Pangbourne 52 before crossing the N1 in order to run across the flat terrain of the military base to the town of Musina.

No heritage resources of significance were observed along this part.

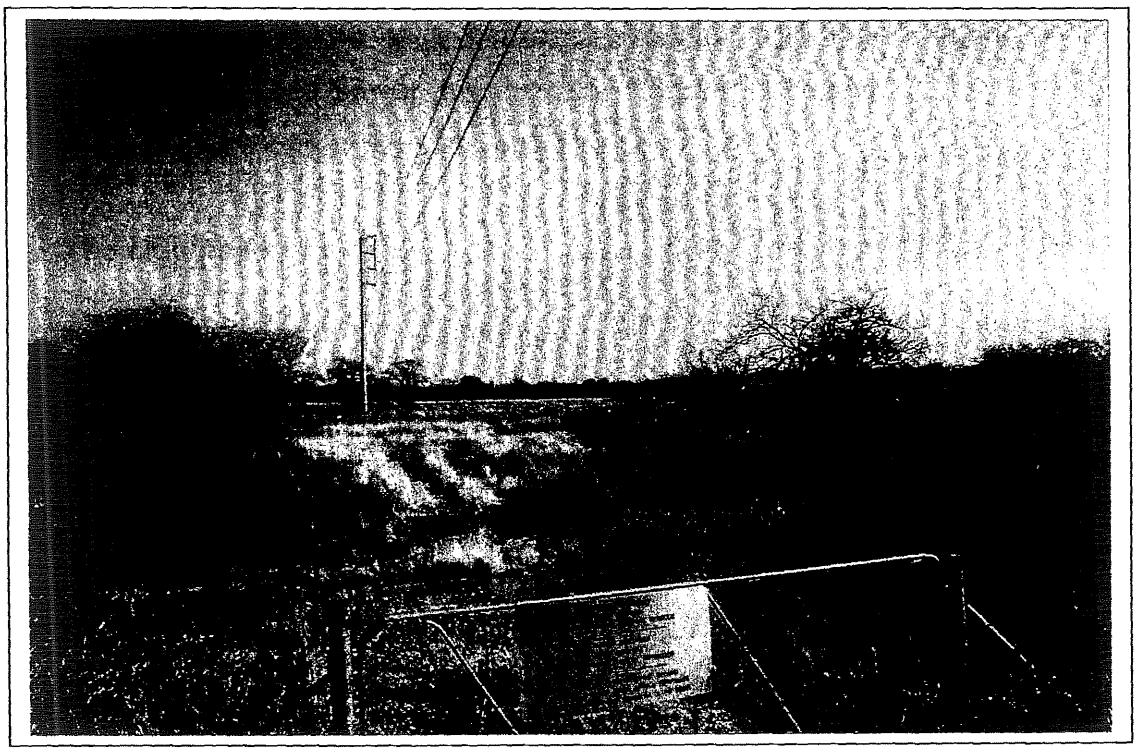


Figure 6- After crossing the N1 Part EF of Eskom's proposed new power line runs across the flat terrain of a military base followed by the Musina town lands to the Musina Substation (above).

Heritage resources	Coordinates	Significance
Stone Age Site (SA01)	22° 38.819' 29°.46.807'	**HIGH**
Remains from the recent past (RP01)	22° 50.531' 29°.53.330'	**LOW**
Graveyard (GY01)	22° 37.944' 29°.53.340'	**HIGH**
Graveyard (GY02)	22° 48.127' 29°.53.722'	**HIGH**

Table 1- Coordinates for heritage resources and their significance in and near Eskom's proposed new power line corridor running between the Paradise-T and Musina Substations in the Limpopo Province of South Africa (above).

5.3 The significance of the heritage resources

The Phase I HIA study for the 132kV power line running between the Paradise-T and Musina Substations 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 or near the Eskom Project Area, namely:

- A site with stone tools (Site SA01) in and near Eskom's proposed new power line corridor on the farms Oorwinning 713 and Windhoek 649.
- A site dating from the Historical Period (Site RRP01) or from the recent past on Windhoek 649.
- Two graveyards (GY01 and GY02), in and near the proposed new power line corridor on Windhoek 649.

These heritage resources in or near Eskom's proposed new power line were geo-referenced and mapped (Figure 1; Table 1). The significance of the heritage

resources were indicated by using criteria relating to the National Heritage Resources Act (No 25 of 1999) and criteria referring to the particular type of heritage resource under discussion.

5.3.1 The Stone Age site

Stone Age site qualify as archaeological sites which are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). However, Site SA01 along Part AB cannot be considered to be of high significance due to the following criteria:

- Site SA01 represents a random scatter of stone tools that also occur elsewhere along the northern foothills of the Soutpansberg. More Stone Age sites therefore exist where the proposed new power line will be constructed. An impact on Site SA01 would therefore be limited to a few individual artifacts within several large assemblages which occur in a wide area near the power line corridor.
- The majority of sites that were recorded date from the Middle Stone Age and perhaps from the First Intermediate Period (Late Acheulian or Sangoan culture). There are consequently a large number of stone tools available from at least one or two cultural periods and not necessarily from several consecutive time periods of the Stone Age. An impact on one or two cultural periods is less significant than an impact on a sequence of cultural periods representing a long period of time.
- The sites have been exposed by erosion and consequently are not sites with undisturbed archaeological contexts any longer. Sites with disturbed archaeological contexts have less significance than sites with undisturbed archaeological contexts.

5.3.2 The site from the Historical Period and/or the recent past

Site RP01 probably dates from the Historical Period and/or from the more recent past. Historical sites which are older than sixty years are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). However, this site cannot be considered to be of high significance due to the following criteria:

- Site RP01 lacks substantial surface material or (deep) archaeological deposits which would have enhanced the research potential of the site.
- Sites dating from the recent past may be more common than sites dating from the distant past as they were not subjected to long periods of natural decay. It is therefore possible that similar sites dating from the more recent past may occur in the Eskom Project Area making Site RP01 not necessarily unique.
- The site was partly damaged when a two track road was built through the eastern perimeter of the site (parallel with the existing power line).

5.3.3 The graveyard

Only GY01 will be affected by Eskom's proposed new power line. All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes 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).

5.4 Mitigating the heritage resources

Mitigation measures are outlined for these heritage resources that may be affected by the construction and maintenance of the new power line.

5.4.1 The stone tools

Site SA01 needs not to be mitigated as the stone tools which are associated with this site will not be destroyed by the new development. The few stone tools that may be affected by the development project will merely be re-deposited near the proposed new power line.

Consequently, no mitigation measures are required for the stone tools.

5.4.2 The site from the Historical Period and/or recent past

Eskom's pylons need not to be erected within the perimeters of Site RP01 which is located under Eskom's existing power line. The proposed new power line will be constructed near Site's RP01 eastern perimeter. Site RP01 therefore needs not to be affected by the construction of the new power line - particularly if the site is demarcated and highlighted with red emergency tape when the construction of the new power line is undertaken.

5.4.3 The graveyard

GY01 need not to be affected by the construction of the new power line as the graveyard can be left *in situ*. The graveyard can also be avoided as the proposed new power lines will be constructed overhead (above) the cemetery and by positioning the pylons closest to the graveyard at safe distances on opposite sides (ends) of the graveyard. This graveyard merely contains seven graves that are does not cover a large surface area as they are clustered together.

6 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA study for the proposed new 132kV power line running between the Paradise-T and Musina Substations 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 or near the Eskom Project Area, namely:

- A site with stone tools (Site SA01) in and near Eskom's proposed new power line corridor on the farms Oorwinning 713 and Windhoek 649.
- A site dating from the Historical Period (Site RP01) or from the recent past on Windhoek 649.
- Two graveyards (GY01 and GY02) in and near the proposed new power line corridor on Windhoek 649.

These heritage resources in or near Eskom's proposed new power line were geo-referenced and mapped (Figure 1; Table 1). The significance of the heritage resources were indicated by using criteria relating to the National Heritage Resources Act (No 25 of 1999) and criteria referring to the particular type of heritage resource under discussion.

The significance of the heritage resources

The Stone Age site

Stone Age site qualify as archaeological sites which are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). However, Site SA01 along Part AB cannot be considered to be of high significance due to the following criteria:

- Site SA01 is associated with a random scatter of stone tools that also occur elsewhere along the northern foothills of the Soutpansberg. More Stone Age sites therefore exist where the proposed new power line will be constructed. An impact on Site SA01 would be limited to a few individual stone tools which are part of larger assemblages which occur in a wide area near the power line corridor.

- The majority of sites that were recorded date from the Middle Stone Age and perhaps from the First Intermediate Period (Late Acheulian or Sangoan culture). There are consequently a large number of stone tools available from at least one or two cultural periods and not necessarily from several consecutive time periods of the Stone Age. An impact on one or two cultural periods is less significant than an impact on a sequence of cultural periods representing a long period of time.
- The sites have been exposed by erosion and consequently are not sites with undisturbed archaeological contexts any longer. Sites with disturbed archaeological contexts have less significance than sites with undisturbed archaeological contexts.

The site from the Historical Period and/or the recent past

Site RP01 probably dates from the Historical Period and/or from the more recent past. Historical sites which are older than sixty years are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). However, this site cannot be considered to be of high significance due to the following criteria:

- Site RP01 lacks substantial surface material or (deep) archaeological deposits which would have enhanced the research potential of the site.
- Sites dating from the recent past are more common than sites dating from the distant past as they were not subjected to long periods of natural decay. It is therefore possible that similar sites dating from the more recent past may occur in the Eskom Project Area making Site RP01 not necessarily unique.
- The site was partly damaged when a two-track road was built through the eastern perimeter of the site (parallel with the existing power line).

The graveyard

Only GY01 will be affected by Eskom's proposed new power line. All graveyards and graves can be considered to be of high significance and are protected by various laws. Legislation with regard to graves includes 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).

Mitigating the heritage resources

Mitigation measures are outlined for those heritage resources that may be affected by the construction and maintenance of the new power line.

The stone tools

The few stone tools that may be affected by the development project are indestructible and will merely be re-deposited near the proposed new power line.

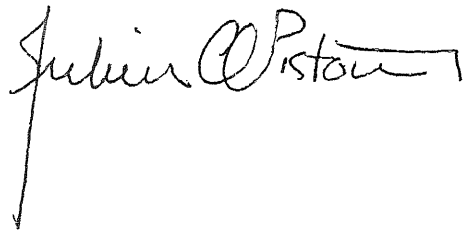
Consequently, no mitigation measures are required for the stone tools.

The site from the Historical Period and/or recent past

Eskom's pylons need not to be erected within the perimeters of Site RP01 which is located under Eskom's existing power line. The proposed new power line will be constructed near Site's RP01 eastern perimeter. Site RP01 therefore needs not to be affected by the construction of the new power line - particularly if the ...e is demarcated and highlighted with red emergency tape when the construction of the new power line is undertaken.

The graveyard

GY01 need not to be affected by the construction of the new power line as the graveyard can be left *in situ*. The graveyard can also be avoided as the proposed new power lines will be constructed overhead (above) the cemetery and by positioning the pylons closest to the graveyard at safe distances on opposite sides (ends) of the graveyard. This graveyard merely contains seven graves that are does not cover a large surface area as they are clustered together.



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