

**DRAFT PHASE I HERITAGE IMPACT ASSESSMENT STUDY FOR
THE ESKOM TSHWANE STRENGTHENING PROJECT PHASE 1 IN
PRETORIA(TSHWANE) IN THE GAUTENG PROVINCE OF SOUTH
AFRICA: THE APOLLO-VERWOERDBURG SUBSTATION
UPGRADE AND 400kV TURN-IN POWER LINES**

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Prepared for:

**SAVANNAH ENVIRONMENTAL (PTY) LTD
ESKOM TRANSMISSION**

Prepared by:

**Dr Julius CC Pistorius
Archaeologist and Heritage Consultant
Member ASAPA**

**352 Rosemary Street Lynnwood 0081
PO Box 1522 Roodekuil
Bela Bela 0480**

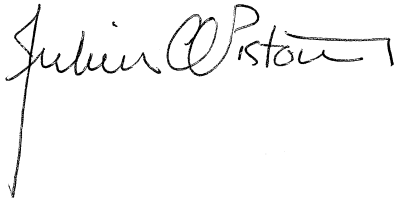
Tel and fax 0147362115

Cell 0825545449

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PROFESSIONAL DECLARATION

I, the undersigned Dr. Julius Cornelius Christiaan Pistorius hereby declare that I am a professional archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA) and that I do work as a one-man, independent consultant with no association or with any other interest whatsoever with any institution, organisation, mine or whatever and that the remuneration I earn from consulting work constitutes the basis of my livelihood and income.

A handwritten signature in black ink, appearing to read 'Julius Pistorius', with a long vertical line extending downwards from the end of the signature.

Dr Julius CC Pistorius
Archaeologist and Heritage Consultant
Member ASAPA

EXECUTIVE SUMMARY

This Phase I Heritage Impact Assessment study for the Tshwane Strengthening Project was done according to Section 38 of the National Heritage Resources Act (No 25 of 1999). The Tshwane Strengthening Project covers part of Tshwane in the north and Centurion in the south and will be handled as the following three individual Environmental Impact Assessment (EIA) studies, namely:

- The upgrading of the Apollo-Verwoerdburg Substations and the construction of 400kV loop-in and loop-out power lines from the 400kV Pluto-Apollo power line to the Verwoerdburg Substation.
- The construction of the 400kV Kwagga-Phoebus power lines.
- The upgrading of the Kwagga and Phoebus Substations.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the upgrading of the Apollo-Verwoerdburg Substations and construction of 400kV loop-in and loop-out power lines from the 400kV Pluto-Apollo power line to the Verwoerdburg Substation. This project is referred to as the Eskom Project and the area to be affected by the power lines is referred to as the Eskom Project Area.

The aims with the Phase 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 (Act 25 of 1999) (see Box 1) do occur in the Eskom Project Area.
- To determine the nature, the extent and the significance of these heritage resources and whether these remains will be affected by the Eskom Project.
- To evaluate what appropriate mitigation measures could be implemented to reduce the impact of the proposed Eskom Project on these heritage resources.

The Phase I HIA study for the Eskom 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), namely:

- At least two graveyards located near Alternative 01 and Alternative 02 for the 400kV loop-in and loop-out power lines running from the 400kV Pluto-Apollo power line to the Verwoerdburg Substation.

- No heritage resources were observed along Alternative 03 and 3a.

These graveyards were geo-referenced and mapped (Figure 3; Table 1). Their significance of the graveyards is indicated.

The significance of the graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws. 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).

Possible impact on the graveyards

It is unlikely that either Graveyard 01 or Graveyard 02 will be directly impacted when either Alternative 01 or Alternative 02 is constructed for the proposed loop-in and loop-out power line between the 400kV and the Verwoerdburg Substation due to the following reasons (Tables 2 & 3):

- Graveyard 01 is located at a safe distance to the north of Alternative 01 and can thus be avoided by the power line.
- Graveyard 02 is located at a safe distance to the west of Alternative 02 and can thus be avoided by the power line.

Mitigating the graveyards

It is unlikely that either GY01 or GY02 will be impacted by Alternative 01 or Alternative 02 running between the 400kV Apollo-Pluto power line and the Verwoerdburg Substation. Consequently, no mitigation measures are required for the graveyards.

General

Heritage resources can be found in the most unexpected places. While some remains may simply be missed during surveys others may occur below the surface of the earth and may only be exposed once the Eskom Project commences.

Consequently, when chance finds of heritage resources are made during the Eskom Project, the South African Heritage Resources Agency (SAHRA) should be notified immediately, all construction 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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1 BACKGROUND TO THE PROJECT

Eskom's Transmission is currently supplying the Tshwane municipality with electricity. However, Tshwane has applied for new supply points as well as a step load increase from Eskom. Consequently, the City of Tshwane Electricity Supply Scheme which will involve the construction of four new substations, namely: Eskom Phoebus (400/275/132 kV) Substation; Eskom Verwoerdburg (400/275/132kV) Substation; Eskom Anderson (400/275/132kV) Substation and the Tshwane (400/132kV) Wildebeest Substation. The Tshwane Strengthening Project (hereafter referred to as the Eskom Project) involves some of these components as well as the construction of new power lines.

The proposed Eskom Project may impact on South Africa's 'national estate' which comprises a wide range of heritage resources, some of which may occur in the Eskom Project Area (see see Box 1). Savannah Environmental, the company responsible for compiling an Environmental Impact Assessment (EIA) report for the Eskom Project, therefore commissioned the author to conduct a Phase I Heritage Impact Assessment (HIA) study as required by Section 38 of the National Heritage Resources Act (No 25 of 1999) for the Eskom Project Area.

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

- To establish whether any of the types and ranges of heritage resources ('national estate') as outlined in Section 3 of the National Heritage Resources Act (Act 25 of 1999) (see Box 1) do occur in the Eskom Project Area.
- To determine the nature, the extent and the significance of these heritage resources and whether these remains will be affected by the Eskom Project.
- To evaluate what appropriate mitigation measures could be implemented to reduce the impact of the proposed Eskom Project on these heritage resources.

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 METHODOLOGY

This Phase I HIA study was conducted by means of consulting archaeological (heritage) data bases; studying maps of the Project Area; doing a brief survey of literature relating to the pre-historical and historical context of the Project Area and by means of fieldwork.

2.1 Archaeological data bases

Archaeological data bases kept at heritage institutions such as the African Window Museum in Pretoria (Tshwane), the South African Heritage Resources Authority (SAHRA) (Cape Town [national]) and the Gauteng Heritage Resources Authority were consulted to establish if any heritage resources of significance occur in or near the Project Area.

2.2 Maps

The 1: 50 000 topographical map and the 1: 250 000 map outlining the Project Area were studied for any possible heritage resources in and near the Project Area (2528CA Pretoria & 2528CC Verwoerdburg; 1:50 000 topographical maps; 2528 Pretoria 1:250 000 map)

The author is not totally unacquainted with the larger Project Area as he has undertaken several heritage impact assessment studies for power lines as well as for other development projects in and near the Project Area (see Part 6, 'Select Bibliography').

2.3 Survey of literature

A brief survey of literature relating to the pre-historical and cultural history of the region was undertaken in order to contextualise the Project Area (see Part 4, 'The Project Area' and Part 6, 'Select Bibliography').

2.4 Fieldwork

The Eskom Project Area was surveyed with a vehicle while selected sensitive spots in the Project Area were surveyed on foot.

2.5 Limitations and assumptions

Heritage resources can be found in the most unexpected places. While some remains may simply be missed during surveys others may occur below the surface of the earth and may only be exposed once the Eskom Project commences.

Consequently, when chance finds of heritage resources are made during the Eskom Project, the South African Heritage Resources Agency (SAHRA) should be notified immediately, all construction 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.

2.6 Some remarks on terminology

Terminologies that may be used in this report are briefly outlined in Box 1.

Box 1. 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 Tshwane and Centurion 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 honoured 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 terms 'Early Iron Age' and 'Late Iron Age' respectively refer to the periods between the first and the second millenniums AD. The 'Late Iron Age' refers to the period between the 17th and the 19th centuries and 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.

3 THE TSHWANE STRENGTHENING PROJECT

3.1 Nature and extent of the project

The Tshwane Strengthening Project involves the following components:

- The construction of a new 400kV transmission power line from the Phoebus (Hangklip) Substation to the Kwagga Substation (approximately 30km). The Kwagga-Phoebus transmission line has three alternatives, namely:
 - Route KP01 which is the longest part of the power line and which runs the total length between the Kwagga and Phoebus Substations.
 - Route KP02 which is a short deviation located in Garankuwa.
 - Route KP03 which is a second short deviation situated near Hornsnek along the northern foot of the Magaliesberg.
- The construction of the new Phoebus Substation adjacent (north) to the existing Phoebus Substation.
- The construction of a new 400kV loop-in transmission power line from the existing 400kV Apollo/Dinaledi power line to feed the Phoebus Substation (approximately 10km).
- The extension of the existing Verwoerdburg Substation.
- The construction of 2x400 kV turn-in and turn-out power lines from the Apollo/Pluto power line to the Verwoerdburg Substation (approximately 6km). Two alternatives exist for the turn-in and turn-out lines, namely:
 - Alternative 01 which runs south-west and then southwards before joining the Apollo/Pluto lines
 - Alternative 02 which runs south-westwards in a straight line in order to join the Apollo/Pluto lines
 - Alternative 03 and 3a which runs south-westwards and then eastwards to join the Apollo/Pluto lines.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the upgrading of the Apollo-Verwoerdburg Substations and for the construction of 400kV loop-in and loop-out power lines from the 400kV Pluto-Apollo power line to the Verwoerdburg Substation

3.2 The Eskom Project Area

Considering the various components of the proposed Eskom Project it is clear that the project will be developed in two geographical separate areas, namely:

- In Tshwane (north) where the Phoebus-Kwagga components of the project will be developed (2528CA Pretoria; 1: 50 000 topographical map).
- In Centurion (south) where the Verwoerdburg-Apollo components of the project will be developed (2528CC Verwoerdburg; 1:50 000 topographical map) (Figure 1).



Figure 1- The Verwoerdburg and Apollo Substations are located in the southern part of the Eskom Project Area and will be upgraded (above).

The pre-historical, historical and cultural context of the northern and southern parts of the Eskom Project Area has been outlined in the scoping report for the Tshwane Strengthening Project and is therefore not repeated in this report (see Pistorius, J.C.C. 2009. *A heritage scoping report for the Eskom Tshwane Strengthening Project in Centurion and Tshwane in the Gauteng Province of South Africa*. Unpublished report prepared for Savannah Environmental and Eskom Transmission).



Figure 2- The existing 400kV Apollo-Pluto power from where a loop-in and loop-out power line will be established to the Verwoerdburg Substation (above).

4 THE PHASE I HERITAGE IMPACT ASSESSMENT

4.1 Types and ranges of heritage resources

The Phase I HIA study for the Eskom 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), namely:

- At least two graveyards located near Alternative 01 and Alternative 02 for the 400kV loop-in and loop-out power lines running from the 400kV Pluto-Apollo power line to the Verwoerdburg Substation.
- No heritage resources were observed along Alternative 03 and 3a.

These graveyards were geo-referenced and mapped (Figure 3; Table 1). The significance of the graveyards is indicated.

The Phase I HIA study is now briefly described and illustrated with photographs.

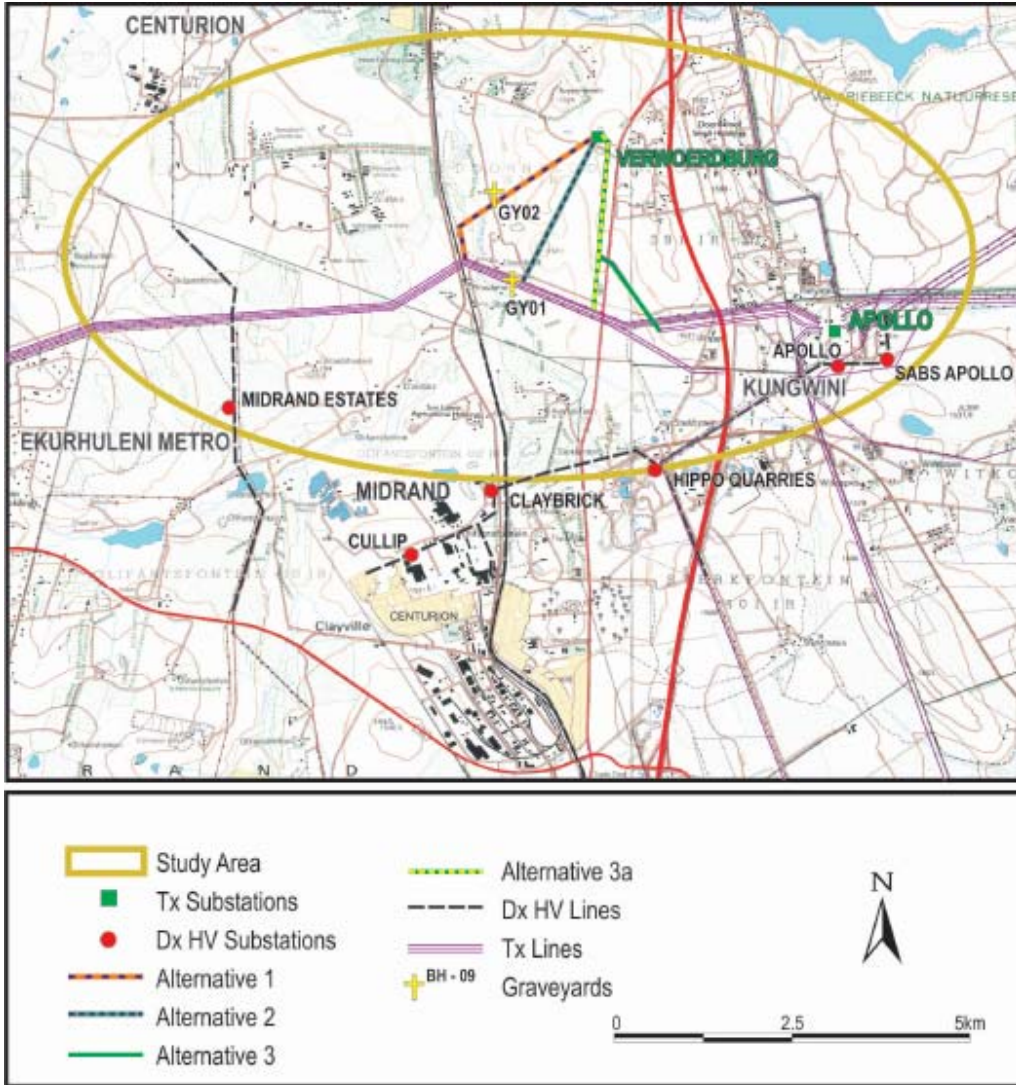


Figure 3- Two graveyards located in close proximity to Alternative 01 and Alternative 02, two loop-in and loop-out power lines running between the 400kV Apollo-Pluto power line and the Verwoerdburg Substation (above).

4.1.1 The graveyards

Two graveyards are located in close proximity of Alternative 01 and Alternative 02 for the loop-in and loop-out power lines to be established between the 400kV Apollo- Pluto power line and the Verwoerdburg Substation, namely:

4.1.1.1 Graveyard 01

GY01 holds as many as eighty-five graves and is situated near Alternative 01. Only one of the graves is fitted with a granite head stone whilst all the others are covered with piles of stone.

The inscription on the granite headstone is indecipherable.

Graveyards	Coordinates	Significance
GY01. Approximately 20 graves. Under Eskom's 400kV transmission line.	25° 54.794' 28° 14.087'	HIGH
GY02. Approximately 85 graves in open veldt.	25° 54.127' 28° 13.958'	HIGH

Table 1- Coordinates for two graveyards near Alternatives 01 and 02, two loop-in and loop-out power lines running from the 400kV Apollo-Pluto power line to the Verwoerdburg Substation (above).



Figures 4 & 5- GY01 near Alternative 01 holds approximately eighty-five graves (above) whilst GY02 underneath the 400kV Apollo-Pluto power line hold as many as twenty graves near Alternative 02 (below)



4.1.1.2 Graveyard 02

This graveyard holds as many as twenty graves mostly covered with piles of stone and is situated underneath the 400kV Apollo-Pluto power line in close proximity of Alternative 02.

4.2 The significance of the graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws. 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).

4.3 Possible impact on the graveyards

It is unlikely that either Graveyard 01 or Graveyard 02 will be directly impacted when either Alternative 01 or Alternative 02 is constructed for the proposed loop-in and loop-out power line between the 400kV and the Verwoerdburg Substation due to the following reasons (Tables 2 & 3):

- Graveyard 01 is located at a safe distance to the north of Alternative 01 and can thus be avoided by the power line.
- Graveyard 02 is located at a safe distance to the west of Alternative 02 and can thus be avoided by the power line

4.4 Mitigating the graveyards

It is highly unlikely that either GY01 or GY02 will be impacted by Alternative 01 or Alternative 02 running between the 400kV Apollo-Pluto power line and the Verwoerdburg Substation. Consequently, no mitigation measures are required for the graveyards.

5 CONCLUSION

The Phase I HIA study for the Eskom 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), namely:

- At least two graveyards located near Alternative 01 and Alternative 02 for the 400kV loop-in and loop-out power lines running from the 400kV Pluto-Apollo power line to the Verwoerdburg Substation.
- No heritage resources were observed along Alternative 03 or 3a.

These graveyards were geo-referenced and mapped (Figure 3; Table 1). Their significance of the graveyards is indicated.

The significance of the graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws. 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.

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Possible impact on the graveyards

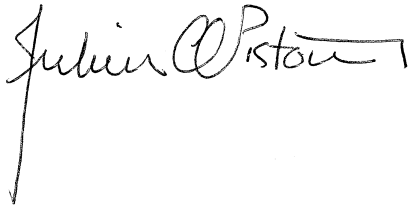
It is unlikely that either Graveyard 01 or Graveyard 02 will be directly impacted when either Alternative 01 or Alternative 02 is constructed for the proposed loop-in and loop-out power line between the 400kV and the Verwoerdburg Substation due to the following reasons (Tables 2 & 3):

- Graveyard 01 is located at a safe distance to the north of Alternative 01 and can thus be avoided by the power line.

- Graveyard 02 is located at a safe distance to the west of Alternative 02 and can thus be avoided by the power line

Mitigating the graveyards

It is unlikely that either GY01 or GY02 will be impacted by Alternative 01 or Alternative 02 running between the 400kV Apollo-Pluto power line and the Verwoerdburg Substation. Consequently, no mitigation measures are required for the graveyards.

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Dr Julius CC Pistorius
Archaeologist and Heritage Consultant
Member ASAPA

6 SELECT BIBLIOGRAPHY

Bergh, J.S. (red.) 1998. *Geskiedenisatlas van Suid Afrika. Die vier noordelike provinsies*. J.L. van Schaik: Pretoria.

Inskeep, R.R. 1978. *The peopling of Southern Africa*. David Philip: Cape Town.

Naude, M. 1990. Die Transvaalse Boerewoning. *Africana Society of Pretoria* (8): 46-49.

Pistorius, J.C.C. 2002. A Cultural Heritage Assessment of the proposed Zwartkop Golf Estate (Centurion), incorporating a scoping assessment of the old clubhouse, associated buildings and direct environs. *Unpublished report prepared for Landscape Dynamics*.

Pistorius, J.C.C. 2002. A Heritage Impact Assessment study for the new Eldo Lakes residential development on Portion 334 and Portion 170 of the farm Zwartkop 356JR in Centurion. *Unpublished report prepared for Landscape Dynamics*.

Pistorius, J.C.C. 2002. A Heritage Impact Assessment (HIA) study for the Mooiplaats Industrial Security Park on the farm Mooiplaats 355JR in Centurion. *Unpublished report prepared for Landscape Dynamics*.

Pistorius, J.C.C. 2005. A Heritage Impact Assessment (HIA) of three power lines routes for the proposed Apollo-Dinaledi 400kV transmission line crossing the Rietvlei Nature Reserve east of Centurion in the Gaiuteng Province of South Africa. *Unpublished report prepared for Landscape Dynamics*.

Pistorius, J.C.C. 2009. *A heritage scoping report for the Eskom Tshwane Strengthening Project in Centurion and Tshwane in the Gauteng Province of South*

Africa. Unpublished report prepared for Sanannah Environmental and Eskom Transmission).

Van Warmelo, N. J. 1930. *Transvaal Ndebele texts*. Government Printer: Pretoria.