

**DRAFT PHASE I HERITAGE IMPACT ASSESSMENT STUDY FOR THE
PROPOSED TSHWANE STRENGTHENING PROJECT PHASE 1 PRETORIA
(TSHWANE) IN THE GAUTENG PROVINCE OF SOUTH AFRICA: THE
PROPOSED CONSTRUCTION OF THE 400kV KWAGGA-PHOEBUS POWER
LINE**

VOLUME 2 REPORT: EIA REFERENCE 12/12/20/1471

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**

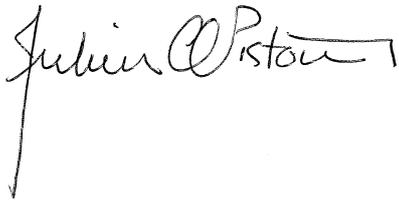
Tel and fax 0147362115

Cell 0825545449

January 2010

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 Phase 1 was done according to Section 38 of the National Heritage Resources Act (No 25 of 1999). The Tshwane Strengthening Project Phase 1 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 construction of 400kV loop-in and loop-out power lines.
- The construction of the 400kV Kwagga-Phoebus power line
- The upgrading of the Kwagga substation and establishment of Phoebus Substation.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the construction of the 400kV Kwagga-Phoebus power line. 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:

- A number of blockhouses running along the Daspoortrand near Alternative 01 for the 400kV Phoebus Kwagga power line.

The blockhouses were geo-referenced and mapped (Figure 3; Table 1). Their significance is indicated and mitigation measures are outlined should these remains be affected by the Eskom Project.

The significance of the blockhouses

Alternative 01 for the proposed 400kV Phoebus-Kwagga power line is associated with British blockhouses which occur along the Daspoortrand.

The British blockhouses qualify as historical and archaeological remains and therefore are protected by Section 3 and Section 38 of the National Heritage Resources Act (No 25 of 1999).

Possible impact on the blockhouses

It is unlikely that Blockhouse 01 will be directly impacted by Alternative 01 for the proposed 400kV Phoebus Kwagga power line due to the following reason:

- Alternative 01 for the proposed 400kV Phoebus Kwagga power line runs at a safe distance to the east of Blockhouse 01.

The significance of any possible impact on the British Blockhouse is indicated in Table 1.

Mitigating the blockhouses

Alternative 01 for the proposed 400kV Phoebus Kwagga power line will not impact on Blockhouse 01. Therefore no mitigation measures are required for Blockhouse 01.

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.

CONTENTS

Executive summary	2
1 BACKGROUND TO THE PROJECT	6
2 METHODOLOGY	8
2.1 Archaeological data bases	8
2.2 Maps	8
2.3 Survey of literature	9
2.4 Fieldwork	9
2.5 Limitations and assumptions	9
2.6 Some remarks on terminology	9
3 THE TSHWANE STRENGTHENING PROJECT	11
3.1 Nature and extent of the project	11
3.2 The Eskom Project Area	12
4 THE PHASE I HERITAGE IMPACT ASSESSMENT STUDY	14
4.1 Types and ranges of heritage resources	14
4.1.1 The blockhouses	14
4.2 The significance of the blockhouses	18
4.3 Possible impact on the blockhouses	18
4.4 Mitigating the blockhouses	18
5 CONCLUSION	19
6 SELECTED BIBLIOGRAPHY	21

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 Phase 1 (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 the management of the Environmental Impact Assessment (EIA) process and compiling of the 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 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 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 PHASE 1

3.1 Nature and extent of the project

The Tshwane Strengthening Project involves the following developmental components:

- The construction of a new 400kV transmission power line from the proposed Phoebus substation (adjacent to 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 the proposed 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 establishment of the new Phoebus Substation adjacent (north) to the existing Hangklip 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 which follows the Apollo-Pluto lines adjacent to the M57.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the construction of the 400kV Kwagga-Phoebus power lines. 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.

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:

- Tshwane (north) where the Phoebus/Kwagga components of the project will be developed (2528CA Pretoria; 1: 50 000 topographical map) (Figure 2).
- Centurion (south) where the Verwoerdburg/Apollo components of the project will be developed (2528CC Verwoerdburg; 1:50 000 topographical map).

Figure 1- Alternative 01 for the proposed 400kV Phoebus-Kwagga power line will cross Hornsnek in the Magaliesberg (below).



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- Alternative 01 after crossing the Daspoortrand on its way to the Kwagga 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:

- A number of blockhouses running along the Daspoortrand near Alternative 01 for the 400kV Phoebus Kwagga power line.

The blockhouses were geo-referenced and mapped (Figure 3; Table 1). Their significance is indicated and mitigation measures are outlined should these remains be affected by the Eskom Project.

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

4.1.1 The blockhouses

Historical evidence has indicated that at least one hundred blockhouses were constructed during the Anglo Transvaal War (1899 to 1902) in and near Pretoria. Most of these structures occur along mountain ranges such as the Magaliesberg, Witwatersberg and the Daspoortrand. The remains of 28 of these blockhouses were discovered during fieldwork while evidence for the destruction of at least ten blockhouses was found in historical documents. The remaining blockhouses were probably destroyed during the expansion of the inner city and the subsequent development of the outlying suburbs.

The blockhouses built in and near Pretoria can, for the sake of clarity, be divided into:

- The forte in Pretoria;

- The line of blockhouses on the Daspoortrand;
- Blockhouses on the Magaliesberg;
- Blockhouses along the perimeters of Pretoria; and
- A line of blockhouses towards Rustenburg.

The line of blockhouses on the Daspoortrand has relevance to this report. At least eight of these blockhouses, all located to the east of Alternative 01 for the proposed 400kV Phoebus-Kwagga power line were geo-referenced and mapped (Figure 5, Table 1).

Britain thought at the outbreak of the Second Anglo-Boer War on 11 October 1899, that the British would triumph over the Boer commandos by December of that year. However, the war between the experienced British forces with their superior equipment, forces that outnumbered the Boers, dragged on until May 1902. The British eventually won the war due to changed strategies, which included the use of a mobile artillery, moveable and more efficient machine guns, the destruction of farms, the implementation of the concentration camp system and the construction of fortifications using blockhouses and barbed wire.

The main purpose of the blockhouse system was to defend railway lines and to limit the movement of Boer commandos. The blockhouse system can be divided into lines of blockhouses established along railway lines and lines of blockhouses established in the open veld, usually on higher vantage points such as randjes, ridges or on high mountain ranges such as the Magaliesberg. Approximately 39 lines of blockhouses were established from ca. AD 1900 in the Zuid-Afrikaansche Republiek. These lines comprised a total of 8 000 blockhouses built over a distance of 3 700 kilometres. Approximately 50 000 soldiers supported by 12 000 labourers built and maintained these structures.

Two main types of blockhouses were used, namely blockhouses built with corrugated iron sheets and blockhouses built of stone. The former had various

ground plans that ranged from square to circular, pentagonal or octagonal. Fewer blockhouses were built with stone and they sometimes had two or three levels, equipped with shooting holes. Blockhouses may have additional structures associated with them, such as horse stables, kitchens (messes) and roads paved with stones to be used by mules to carry burdens to and from the blockhouses.

Only Blockhouse 01 occurs in close proximity of Alternative 01 for the proposed 400kV Phoebus-Kwagga power line.

Blockhouses	Coordinates	Significance
BH. Wesfort Block House.	25° 41' 54" 28° 05' 08"	HIGH
BH01. Daspoortrand West Block House 01.	25° 43' 48" 28° 06' 04"	HIGH
BH02. Daspoortrand West Blockhouse 02	25° 43' 49" 28° 07' 17"	HIGH
BH03. Daspoortrand West Blockhouse 03	25° 43' 47" 28° 08' 19"	HIGH
BH04. Daspoortrand West Blockhouse 04	25° 43' 46" 28° 08' 44"	HIGH
BH05. Daspoortrand West Blockhouse 05	25° 43' 47" 28° 09' 08"	HIGH
BH06. Daspoort-West Blockhouse	25° 43' 49" 28° 09' 18"	HIGH
BH07. Daspoort-East Blockhouse	25° 43' 47" 28° 10' 23"	HIGH
BH08. Daspoort-Central Blockhouse	25° 43' 53" 28° 11' 17"	HIGH
BH09. Daspoortrand-East Blockhouse	25° 43' 31" 28° 14' 17"	HIGH

Table 1- Coordinates for blockhouses along the Daspoortrand, one of which is located in close proximity to Alternative 01 for the 400kV Phoebus-Kwagga power line (above).

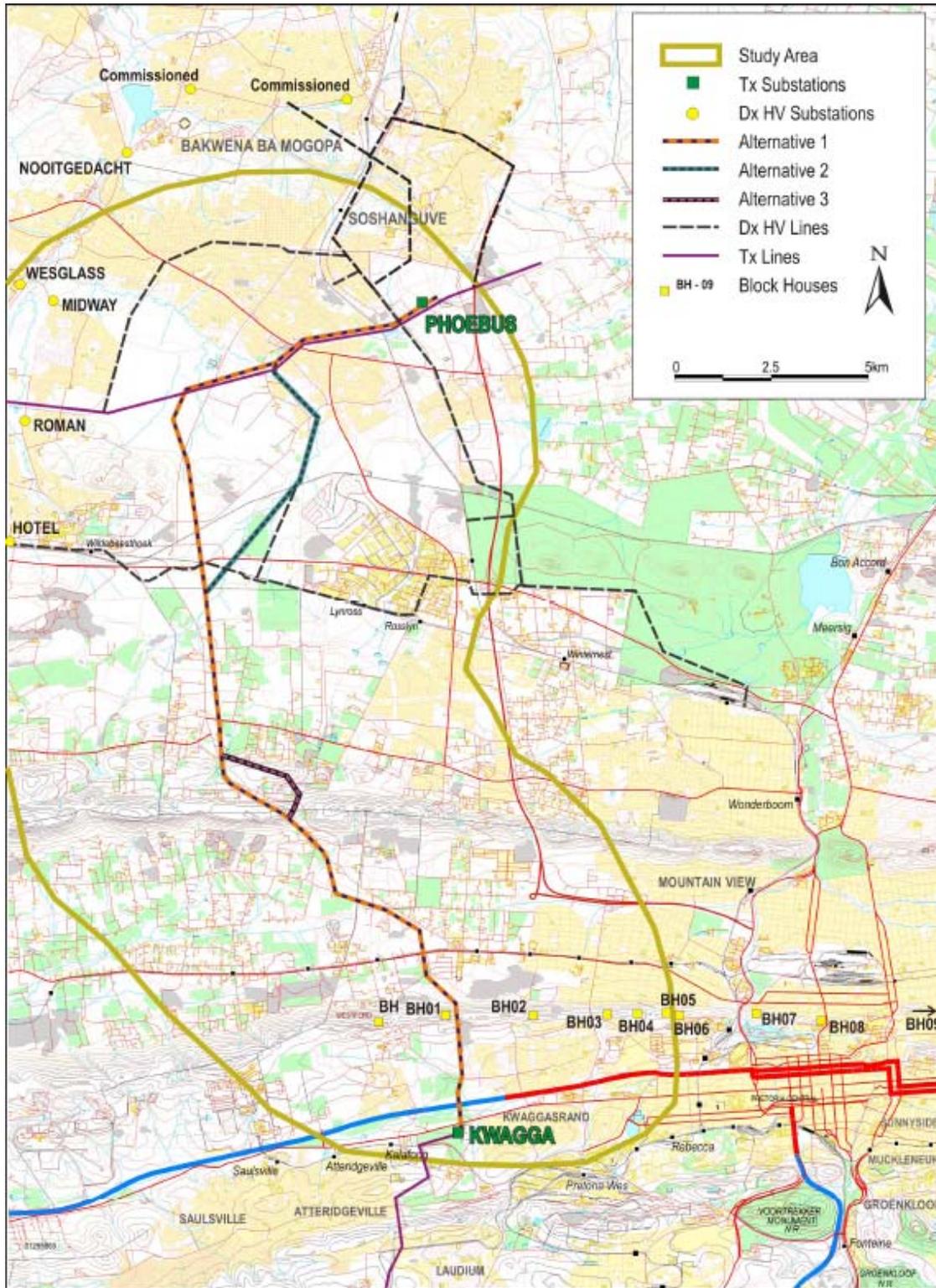


Figure 3- Blockhouses dating from the Anglo Transvaal War (AD 1899 to 1902) occurring along the Daspoortrand, one of which is located near Alternative 01 for the proposed 400kV Phoebus-Kwagga power line (above).

4.2 The significance of the blockhouses

Alternative 01 for the proposed 400kV Phoebus-Kwagga power line is associated with British blockhouses which occur along the Daspoortrand.

The British blockhouses qualify as historical and archaeological remains and therefore are protected by Section 3 and Section 38 of the National Heritage Resources Act (No 25 of 1999). The heritage significance of these structures is therefore high.

4.3 Possible impact on the blockhouses

It is unlikely that Blockhouse 01 (which is located in close proximity to the proposed power line) will be directly impacted by Alternative 01 for the proposed 400kV Phoebus Kwagga power line due to the following reason:

- Alternative 01 for the proposed 400kV Phoebus Kwagga power line runs at a safe distance to the east of Blockhouse 01.

The significance of any possible impact on the British Blockhouse is indicated in Table 1.

4.4 Mitigating the blockhouses

Alternative 01 for the proposed 400kV Phoebus Kwagga power line will not impact directly on Blockhouse 01. Therefore no mitigation measures are required for Blockhouse 01.

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:

- A number of blockhouses running along the Daspoortrand near Alternative 01 for the 400kV Phoebus Kwagga power line.

The blockhouses were geo-referenced and mapped (Figure 3; Table 1). Their significance is indicated and mitigation measures are outlined should these remains be affected by the Eskom Project.

The significance of the blockhouses

Alternative 01 for the proposed 400kV Phoebus-Kwagga power line is associated with British blockhouses which occur along the Daspoortrand.

The British blockhouses qualify as historical and archaeological remains and therefore are protected by Section 3 and Section 38 of the National Heritage Resources Act (No 25 of 1999).

Possible impact on the blockhouses

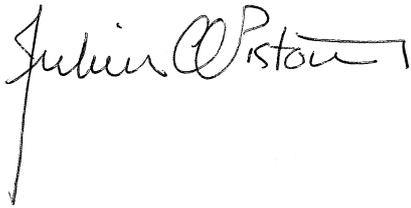
It is unlikely that either Blockhouse 01 will be directly impacted by Alternative 01 for the proposed 400kV Phoebus Kwagga power line due to the following reason:

- Alternative 01 for the proposed 400kV Phoebus Kwagga power line runs at a safe distance to the east of Blockhouse 01.

The significance of any possible impact on the British Blockhouse is indicated in Table 1.

Mitigating the blockhouses

Alternative 01 for the proposed 400kV Phoebus Kwagga power line will not impact on Blockhouse 01. Therefore no mitigation measures are required for Blockhouse 01.

A handwritten signature in black ink, reading "Julius CC Pistorius". The signature is written in a cursive style with a long vertical line extending downwards from the end of the name.

Dr Julius CC Pistorius
Archaeologist and Heritage Consultant
Member ASAPA

6 SELECTED 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 Savannah Environmental and Eskom Transmission).

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

**DRAFT PHASE I HERITAGE IMPACT ASSESSMENT STUDY FOR
THE ESKOM TSHWANE STRENGTHENING PROJECT PHASE 1 IN
PRETORIA IN THE GAUTENG PROVINCE OF SOUTH AFRICA:
UPGRADING OF THE KWAGGA SUBSTATION AND
ESTABLISHMENT OF THE PHOEBUS SUBSTATION:**

EIA

VOLUME 3- KWAGGA PHOEBUS SUBSTATIONS (12/12/20/1524)

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

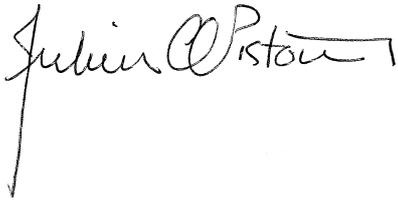
Tel and fax 0147362115

Cell 0825545449

January 2010

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 Phase 1 was done according to Section 38 of the National Heritage Resources Act (No 25 of 1999). The Tshwane Strengthening Project Phase 1 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 substation and establishment of Phoebus Substation.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the upgrading of the Kwagga substation and the establishment of the Phoebus Substation. This project is referred to as the Eskom Tshwane Strengthening Project Phase 1 and the area to be affected by the substations 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 none of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999).

There is consequently no reason from a heritage point of view why the Eskom Project should not proceed.

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.

CONTENTS

Executive summary	2
1 BACKGROUND TO THE PROJECT	5
2 METHODOLOGY	7
2.1 Archaeological data bases	7
2.2 Maps	7
2.3 Survey of literature	8
2.4 Fieldwork	8
2.5 Limitations and assumptions	8
2.6 Some remarks on terminology	8
3 THE TSHWANE STRENGTHENING PROJECT	10
3.1 Nature and extent of the project	10
3.2 The Eskom Project Area	11
4 THE PHASE I HERITAGE IMPACT ASSESSMENT STUDY	12
4.1 Types and ranges of heritage resources	12
5 CONCLUSION	14
6 SELECT BIBLIOGRAPHY	15

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 Phase 1 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 the management of the Environmental Impact Assessment (EIA) process and compilation of the 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 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 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 PHASE 1

3.1 Nature and extent of the project

The Tshwane Strengthening Project Phase 1 involves the following developmental components:

- The construction of a new 400kV transmission power line from the proposed Phoebus (Hangklip) Substation to the Kwagga Substation (approximately 30km). The Kwagga-Phoebus transmission line has three alternative corridors, namely:
 - Route KP01 which is the longest part of the power line and which runs the total length between the Kwagga and the proposed 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 Hangklip 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 which follows the Apollo-Pluto lines adjacent to the M57.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the upgrading of the Kwagga and Phoebus Substations.

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 in the north where the Phoebus-Kwagga components of the project will be developed (2528CA Pretoria; 1: 50 000 topographical map) (Figure 1).
- In Centurion in the south where the Verwoerdburg-Apollo components of the project will be developed (2528CC Verwoerdburg; 1:50 000 topographical map (Figure 2)

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).

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 none of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act.

There is consequently no reason from a heritage point of view why the Eskom Project should not proceed.



Figure 1- The proposed Phoebus Substation in the northern part of the existing Hangklip substation. No heritage resources of significance will be affected by the proposed new development (above).

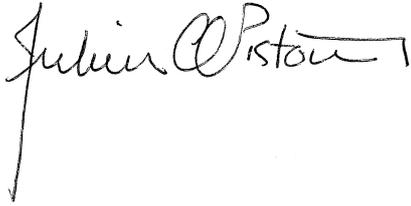


Figure 2- The existing Kwagga Substation in the southern part of the Eskom Project Area will be upgraded. No heritage resources of significance will be affected by the proposed new development (above).

5 CONCLUSION

The Phase I HIA study for the Eskom Project Area revealed none of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) in the Eskom Project Area:

There is consequently no reason from a heritage point of view why the Eskom Project should not proceed.

A handwritten signature in black ink, reading "Julius CC Pistorius". The signature is written in a cursive style with a long vertical line extending downwards from the end of the name.

Dr Julius CC Pistorius
Archaeologist and Heritage Consultant
Member ASAPA

6 SELECTED 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 Savannah Environmental and Eskom Transmission).

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