

Prepared for:

**ESKOM MEGAWATT PARK
AND
ZITHOLELE CONSULTING**

**A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR
ESKOM'S PROPOSED BRAVO PROJECT ON THE EASTERN
HIGHVELD IN THE GAUTENG AND MPUMALANGA PROVINCES
OF SOUTH AFRICA:**

**THE CONSTRUCTION OF A 400kV POWER LINE FROM THE
BRAVO POWER STATION TO THE LULAMISA SUBSTATION.**

Prepared by:

Dr Julius CC Pistorius

Archaeologist and

Heritage Management Consultant

Member ASAPA

352 Rosemary Street

LYNNWOOD 0081

Pretoria

Tel and fax (012) 348 5668

Cell 0825545449

September 2008

EXECUTIVE SUMMARY

Eskom's proposed Bravo Integration Project spans the provinces of Gauteng and Mpumalanga and will be handled as the following five individual Environmental Impact Assessment (EIA) studies):

- Bravo 1: The construction of two 400kV by-pass lines of approximately 10km each from the Sol substation (Kriel) to the Zeus (Secunda) and Cambden substations respectively.
- Bravo 2: The construction of 2X400kV loop-in lines from the Kendal-Apollo and from the Duvha-Minerva lines into the Bravo power station. Each of these lines will be approximately 10km long.
- Bravo 3: The construction of a new 400kV power line from the Bravo power station to the Lulamisa substation which will be approximately 90km long.
- Bravo 4: The construction of 2X400kV power lines from the Kendal power station to the Zeus substation and from Bravo power station to the Zeus substation which will be approximately 90km long.
- Bravo 5: The construction of a 400kV by-pass line, approximately 10km in length, on the Bravo-Vulcan line to by-pass Duvha.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the construction of a 400kV power line from the Bravo power station to the Lulamisa substation which will be approximately 90 km long.

The Eskom Project may impact on any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No. 25 of 1999). Consequently, Zitholele Consulting and Eskom commissioned the author to undertake a Phase I HIA study for the proposed Eskom Project Area with the following aims

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur within the perimeters of the Eskom Project Area and, if so, to determine the level of significance of these heritage resources.

- To make recommendations regarding the mitigation or the conservation of any significant heritage resources that may be affected by the proposed Eskom Project.

The Phase I HIA study for the proposed 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:

- Remains of stone walled sites which can be associated with the Battle of Bronkhorstspuit (1880) and with dwellings dating from the early 20th century.
- Memorabilia consisting of a monument and a Garden of Remembrance associated with the Battle of Bronkhorstspuit (1880).
- Graveyards with possible historical significance.
- Houses and other structures with possible historical significance.

The stone walls, memorabilia associated with the Battle of Bronkhorstspuit and graveyards were geo-referenced, mapped and discussed in this report (Figure 3, Tables 1-3). Their significance is indicated and mitigation measures are outlined should they be affected by the Eskom Project.

The importance of historical structures such as houses is merely pointed out as each and every historical structure in close proximity to the proposed transmission line corridors were not geo-referenced due to time restrictions and the fact that Eskom does not outright demolishes structures in order to make way for new power lines.

Remains from the more recent past have no significance and are not discussed in this report.

The significance of the heritage resources

It is possible that some of the types and ranges of heritage resources that were identified in and near the Eskom Project Area may be impacted by the Eskom Project. The significance of these various types and ranges of heritage resources therefore is indicated by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999).

Stone walls

Stone walled sites qualify as archaeological and historical remains and are protected by Section 38 of the National Heritage Resources Act (No 25 of 1999).

Memorabilia

The monument and Garden of Remembrance qualify as heritage memorials which are protected by Section 37 of the National Heritage Resources Act (No 25 of 1999).

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).

Historical structures

Historical structures such as houses or outbuildings which are older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999).

Mitigating the heritage resources

The following mitigation measures have to be followed whenever any of the identified heritage resources may be affected by the Eskom Project

Stone walls

Stone walled sites must be avoided by pylons by placing pylons on opposite ends of small stone walled sites. However, when stone walls cover large surfaces which represent cultural landscapes they should rather be avoided by the power lines.

If stone walls have to be destroyed to make way for pylons and power lines these stone walls need to be subjected to Phase II investigations. These investigations require that stone walls sites be documented by means of mapping the sites and possibly by means

of small test excavations of the site. Phase II investigations can only be conducted by archaeologists accredited with the Association for Southern African Professional Archaeologists (ASAPA). The archaeologist has to obtain the necessary permit from the South African Heritage Resources Authority (SAHRA) which will authorise the Phase II investigation and subsequent destruction of the archaeological site.

Memorabilia

The memorabilia associated with the Battle of Bronkhorstspuit must be avoided by the Eskom Project as they represent heritage sites with outstanding significance. These memorabilia are also accessible to the public and are regularly visited by tourist or school groups or other interested individuals.

Graveyards

GY01 to GY05 as well as any other undiscovered graves and graveyards in the Eskom Project Area can be mitigated by following one of the following strategies, namely:

- Graveyards and graves can be conserved *in situ* beneath power lines. Pylons should be erected on opposite ends of graves or graveyards. Consequently, power lines can be strung across and above graves and graveyards. Conserving graves and graveyards in power line corridors create the risk that they may be damaged, accidentally, and that Eskom may be held responsible for such damages. Controlled access must exist for any relatives or friends who wish to visit graves or graveyards in power line corridors.
- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

Historical structures

Historical structures may not be affected (demolished, renovated, altered) by the Eskom Project *prior* to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA). The historical architect has to acquire a permit from the South African Heritage Resources Authority (SAHRA) *prior* to any of these structures and features been affected or altered as a result of the Eskom Project.

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

	Executive Summary	2
1	INTRODUCTION	9
2	TERMS OF REFERENCE	12
3	THE ESKOM PROJECT AREA	13
3.1	Location	13
3.2	Within a cultural landscape	14
4	METHODOLOGY	16
4.1	Fieldwork	16
4.2	Databases, literature survey and maps	16
4.3	Assumptions and limitations	17
4.4	Some remarks on terminology	17
5	CONTEXTUALISING THE ESKOM PROJECT AREA	19
5.1	Stone Age sites	19
5.2	Iron Age remains	19
5.3	The historical period	20
5.4	The Anglo Transvaal Wars	21
6	THE PHASE I HERITAGE IMPACT ASSESSMENT	23
6.1	Types and ranges of heritage resources	23
6.1.1	Stone walls	25
6.1.2	Memorabilia associated with the Battle of Bronkhorstspuit	25
6.1.3	Graveyards	28
6.1.3.1	Graveyard 01	28
6.1.3.2	Graveyard 02	28
6.1.3.3	Graveyards 03-05	29
6.1.4	Historical structures	30

6.2	The significance of the heritage resources	31
6.2.1	Stone walls	31
6.2.2	Memorabilia	31
6.2.3	Graveyards	32
6.2.4	Historical structures	32
6.3	Mitigating the heritage resources	32
6.3.1	Stone walls	32
6.3.2	Memorabilia	33
6.3.3	Graveyards	33
6.3.4	Historical structures	34
7	CONCLUSION AND RECOMMENDATIONS	35
8	SELECT BIBLIOGRAPHY	40

1 INTRODUCTION

As part of Eskom's increased electricity supply plan the construction of the new coal-fired Bravo power station between Bronkhorstspuit and Witbank will commence later this year. The Bravo power station is expected to begin delivering electricity around 2013. The proposed Bravo Integration Project is necessary to integrate and connect Bravo into the existing Eskom electricity network. This will foresee that additional electricity supply to areas such as Secunda and Midrand are ensured.

The proposed Bravo Integration Project spans the provinces of Gauteng and Mpumalanga and will be handled as the following five individual Environmental Impact Assessment (EIA) studies):

- Bravo 1: The construction of two 400kV by-pass lines of approximately 10km each from the Sol substation (Kriel) to the Zeus (Secunda) and Cambden substations respectively.
- Bravo 2: The construction of 2X400kV loop-in lines from the Kendal-Apollo and from the Duvha-Minerva lines into the Bravo power station. Each of these lines will be approximately 10km long.
- Bravo 3: The construction of a new 400kV power line from the Bravo power station to the Lulamisa substation which will be approximately 90km long.
- Bravo 4: The construction of 2X400kV power lines from the Kendal power station to the Zeus substation and from Bravo power station to the Zeus substation which will be approximately 90km long.
- Bravo 5: The construction of a 400kV by-pass line, approximately 10km in length, on the Bravo-Vulcan line to by-pass Duvha..

Focused archaeological research has been conducted in the Gauteng and Mpumalanga Provinces of South Africa for more than four decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as the recording of rock art and historical sites. The Gauteng and

Mpumalanga Provinces have a rich heritage comprised of remains dating from the pre-historical and from the historical (or colonial) periods of South Africa. Pre-historical and historical remains in the Gauteng and Mpumalanga Provinces therefore form a record of the heritage of most groups living in South Africa today.

Various types and ranges of heritage resources that qualify as part of South Africa's 'national estate' as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) occur in the Gauteng and Mpumalanga Provinces (see Box 1, next page).

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, Section 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 TERMS OF REFERENCE

Eskom intends to implement the proposed Bravo Integration Project on the Eastern Highveld in the Gauteng and Mpumalanga Provinces of South Africa. The Bravo Integration Project involves five independent heritage impact assessment studies for various components of the project.

This study contains the report on the Phase I Heritage Impact Assessment study which was done for the construction of a 400kV power line from the Bravo power station to the Lulamisa substation which will be approximately 90 km long. 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 Eskom Project may impact on any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No. 25 of 1999). Consequently, Zitholele Consulting and Eskom commissioned the author to undertake a Phase I HIA study for the proposed Eskom Project Area with the following aims

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) do occur within the perimeters of the Eskom Project Area and, if so, to determine the level of significance of these heritage resources.
- To make recommendations regarding the mitigation or the conservation of any significant heritage resources that may be affected by the proposed Eskom Project.

3 THE ESKOM PROJECT AREA

3.1 Location

The Eskom Project Area stretches from the Bravo power station near Ogies in the Mpumalanga Province to the Lulamisa substation near Fourways, west of Randburg in the Gauteng Province of South Africa. The proposed new 400kv Bravo/Lulamisa power line will be approximately 90km long and will follow one of three proposed options in the eastern part of the Eskom Project Area and one option in the western part of the project area (2528 Pretoria 1:250 000) (Figures 1-3).

The eastern part of the proposed 400kV Bravo-Lulamisa power line covers most of the Mpumalanga Province and will follow one of three possible options, namely a northern option that runs along two of Eskom's existing power lines, a central option that will be constructed along a new transmission line corridor and a southern option that will follow one of Eskom's existing power lines. The central and southern options join each other to the west of the Bronberge. All three options converge at the south-western corner of the Rietvlei Nature Reserve. From here a single option will follow Eskom's existing power line in order to the Lulamisa substation near Fourways. This western stretch of the proposed new power line only runs across the Gauteng Province of South Africa.

The Eskom Project Area stretches from the Eastern Highveld in the Mpumalanga Province of South Africa westwards onto the northern Highveld in the Gauteng Province. It is characterised by undulating outstretched grassveld and quartzite ridges near Bronkhorstspuit in the east, the low Bronberg mountain range (eastern tip of the Magaliesberg) in the central part and by grassveld in the west. The general scale of development and that of residential development in particular increases from the east towards the west culminating in the presence of Centurion, Randburg and Diepsloot in the Gauteng Province.

3.2 Within a cultural landscape

The Eskom Project Area is located in the midst of a cultural landscape that is marked by heritage remains dating from the pre-historical into the historical (colonial) period. Stone Age sites, Iron Age sites and colonial remains therefore do occur in the project area (see Part 7 'Select Bibliography'). However, the historical character of the Eskom Project Area is gradually been erased by various kinds of development.

The archaeological and historical significance of the Eskom Project Area must be described and explained in more detail before the results of the Phase I HIA study is discussed (see below, Part 5).



Figure 1- The Eskom Project Area near Bronkhorstspruit in the east is characterised by outstretched grass veldt, agricultural fields and quartzite ridges. Note existing northern corridor running across crest of ridge (above).



Figure 2- The central option for the proposed new 400kV Bravo/Lulamisa power line runs across the Bronkhorstspruit Dam near Bronkhorstspruit (above).

4 METHODOLOGY

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

- Surveying the proposed Eskom Project Area with a vehicle and selected spots on foot.
- Briefly surveying literature relating to the pre-historical and historical context of the Eskom Project Area.
- Consulting maps of the proposed Eskom Project Area.
- Consulting archaeological (heritage) data bases.
- Synthesising all information obtained from the data bases, fieldwork, maps and literature survey.

4.1 Fieldwork

The proposed Eskom Project Area was surveyed with a vehicle where accessible roads existed while selected, sensitive spots in the project area were surveyed on foot.

4.2 Databases, literature survey and maps

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

The author is not unacquainted with the Eskom Project Area at large as he had done several heritage impact assessment studies near the proposed project area (see Part 8, 'Select Bibliography').

Literature relating to the pre-historical and the historical unfolding of the Eastern Highveld where the Eskom Project Area is located was reviewed (see Part 5, 'Contextualising the Eskom Project Area').

It is important to contextualise the pre-historical and historical background of the Eskom Project Area in order to comprehend the identity and meaning of heritage sites in and near the project area.

In addition, the Eskom Project Area was studied by means of maps on which it appears (2528 Pretoria 1: 250 000).

4.3 Assumptions and limitations

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

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

4.4 Some remarks on terminology

Terms 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 Eskom Project Area, to the first appearance or use of 'modern' Western writing brought to the Eastern Highveld by the first Colonists who settled in this area during the 1830's.

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 term 'Iron Age' refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16th century and the 19th century and can therefore include the historical period.

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 'Eskom 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.

5 CONTEXTUALISING THE ESKOM PROJECT AREA

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

5.1 Stone Age sites

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

The Later Stone Age is also associated with rock paintings and engravings which were done by the San, Khoi Khoi and in more recent times by Iron Age farmers.

The Mooiplaas rock engraving site is located on the farm Mooiplaas 367 JR to the north of the Eskom Project Area. This engraving site comprises nearly sixty footprints, 15 to 35 cm long and up to 5cm deep engraved on the surface of four rock plates. The engravings also include more than 15 cupules.

5.2 Iron Age remains

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

Early Iron Age farming communities practised a mixed economy consisting of plant cultivation and stock herding in the interior of South Africa during the first half of the first millennium A. D.. These Bantu-Negroid people, who probably interbred with the local San and Khoi-Khoi, were ironworkers of some repute and established the first permanent villages south of the Limpopo River. Some of their settlements occur to the north of the Magaliesberg and Eskom Project Area.

During the Late Iron Age farming was practised in the northern, central and eastern parts of the country. Stone walled settlements built from the 17th century onwards are particularly numerous to the west of the Eskom study area, where they are associated with the Tswana. Several of these stone walled sites also occur between the Bronberge and the Magaliesberg where they reveal Ndebele spheres of influence. This group originated from KwaZulu-Natal during the 17th century. The group initially settled at Elangeni, somewhere near Randburg. The Manala section of the Ndebele subsequently occupied a wide area to the east of Pretoria between the Bronberge in the south and the Magaliesberg to the north. This sphere of influence stretched from Wapadrand in the west to Tierpoort and Bapsfontein in the east and from Mamelodi in the west to Pienaarspoort in the east. This sphere of influence was known as KwaQobongo and can be divided into three areas which were consecutively occupied by the group, namely Ezotshaneni (ca. 1677 to 1717), Embilaneni (c. 1717 to 1747) and KoNonduna (c.1747 to 1825).

Concentrations of stone walled sites probably associated with the Ndebele were recorded on Tweefontein 372 JR (Wapadrand), Klipkop 396 JR, Hatherly 331 JR, Zwartkopjes 364 JR, Tierpoort 371 JR, Zwavelpoort 373 JR and Rietfontein 395 JR.

5.3 The historical period

The first colonists settled in places in the Magaliesberg such as Tierpoort, Garsfontein and Swawelpoort near the Bronberge. In the second half of the 19th

century, Pretoria was established, on 16 November 1855, to meet the need for a central meeting place for the disunited Voortrekker republics. At first Pretoria developed slowly, and for many years maintained a rural atmosphere. The first mail coach service was established in 1864, telegraph communications followed in 1877 and on New Year's day 1893, the railway line from Elandsfontein (Germiston) reached Pretoria. The Delagoa Bay railway line was opened on 1 January 1895 and the railway line to Pietersburg on 1 May 1899.

Other towns close to the Eskom Project Area include Bronkhorstspuit, Centurion and Randburg.

Bronkhorstspuit which was laid out by Cornelius Erasmus on a part of his farm Hondsrivier in 1904. The town was named Erasmus for a number of years. From July 1935, the town's name, which is derived from a water-cress called 'bronkhors' by early settlers, was changed to Bronkhorstspuit. The 20th century saw the introduction of large-scale irrigation and dry land farming in the eastern parts of the Eskom study area. Today, milling is Bronkhorstspuit's main industry.

Bronkhorstspuit is rich in heritage resources. The town and its outskirts were occupied from the earliest times by Stone Age peoples while Iron Age farmers, who preferred the rocky ridges and outcrops exposed in the rolling landscape, occupied the area from the 17th century onwards. The first Colonists who moved north of the Vaal River during the second half of the 20th century also established farm homesteads, outbuildings and infrastructure across the landscape. The first railroad line between Pretoria and Delagoa Bay passed through Donkerpoort, to the north of the Eskom Project Area.

5.4 The Anglo Transvaal Wars

The Transvaal Anglo Boer War followed in 1880 to 1881. The Second Anglo Boer War raged from 1899 to 1902. Battlefields, graveyards and fortifications

from this time still exist from Irene (Centurion) through to Pretoria, Bronkhorstspuit, Cullinan and to Balmoral and Witbank in the east.

The annexation of the Transvaal Republic with the hoisting of the Union Jack on 12 April 1877 in Pretoria was confronted, four years later, by the re-proclamation of the independence of the South African Republic on 16 December 1880. War erupted. Two companies of the 94 Regiment of Foot was ordered from Lydenburg to Pretoria as reinforcements. A Boer commando under Commandant F. Joubert confronted the British column of Lieutenant-Colonel P.R. Anstruther at Bronkhorstspuit. The column, which was comprised of 250 men and 36 wagons, stretched for almost a kilometre. The British suffered heavy casualties (75 killed and 80 wounded) in a battle that lasted fifteen minutes.

The Battle of Bronkhorstspuit must have taken place on the farm Klippeiland 524 JR as is indicated on the 1:50 000 topographical map of Bronkhorstspuit 2528DC.

The graveyard in which the British soldiers were buried was subsequently moved to make way for a road. The site is situated outside Bronkhorstspuit, some 2.5 kilometres down the road to Delmas. A Garden of Remembrance is situated on one side of the road and a national monument sign on the other side of the road. Both are protected sites.

6 THE PHASE I HERITAGE IMPACT ASSESSMENT

6.1 Types and ranges of heritage resources

The Phase I HIA study for the proposed 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:

- Remains of stone walled sites which can be associated with the Battle of Bronkhorstspuit (1880) and with dwellings dating from the early 20th century.
- Memorabilia consisting of a monument and a Garden of Remembrance associated with the Battle of Bronkhorstspuit (1880).
- Graveyards with possible historical significance.
- Houses and other structures with possible historical significance.

The stone walls, memorabilia associated with the Battle of Bronkhorstspuit and graveyards were geo-referenced, mapped and discussed in this report (Figure 3, Tables 1-3). Their significance is indicated and mitigation measures are outlined should they be affected by the Eskom Project.

The importance of historical structures such as houses is merely pointed out as each and every historical structure in close proximity to the proposed transmission line corridors were not geo-referenced due to time restrictions and the fact that Eskom does not outright demolishes structures in order to make way for new power lines.

Remains from the more recent past have no significance and are not discussed in this report.

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

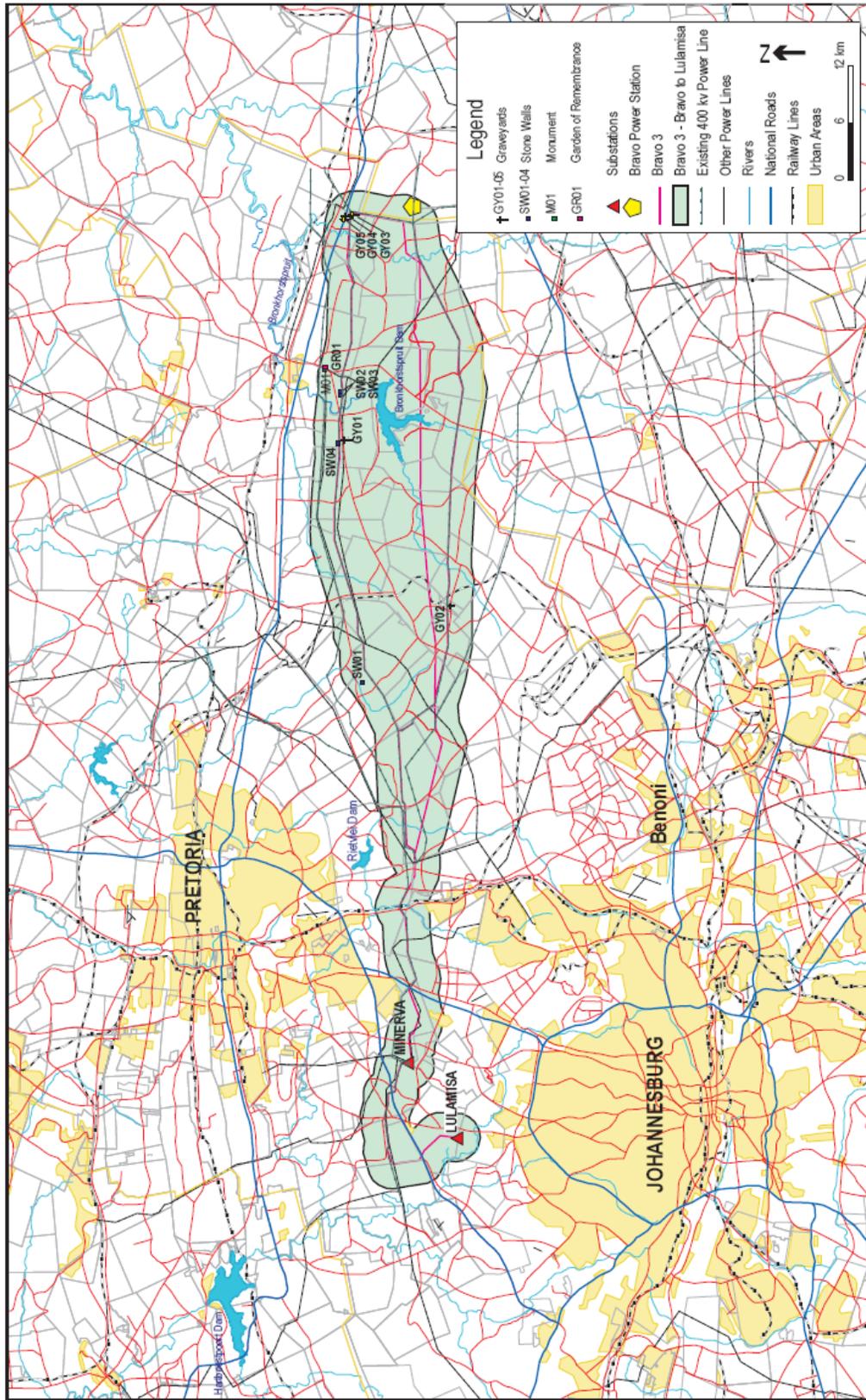


Figure 3- The Eskom Project Area involves the construction of a proposed new 400kV power line running between the Bravo power station in the Mpumalanga Province and the Lulamisa substation in the Gauteng Province of South Africa (above).

Note stone walls, memorabilia commemorating the Battle of Bronkhorstspuit and graveyards in and near the Eskom Project Area.

6.1.1 Stone walls

The Battle of Bronkhorstspuit probably occurred on the farm Klippeiland 524JR as is indicated on the 1:50 000 topographical map of Bronkhorstspuit 2528DC.

Stone walls constructed with quartzite occur on several of the low quartzite ridges to the south of Bronkhorstspuit. Some of these walls occur near Eskom's central option for the proposed new Bravo/Lulamisa power line.

It is highly likely that:

- Some of these structures may be associated with the Battle of Bronkhorstspuit (1880) as they occur in the general area where this battle took place. The stone walls probably served as outlook positions and may have been used for defensive purposes as well.
- Some of the stone walls served as dwellings for people working as farm labourers on farms in the Project Area during the early 20th century.

6.1.2 Memorabilia associated with the Battle of Bronkhorstspuit

The Battle of Bronkhorstspuit is commemorated on the farm Klippeiland 524JR by a Garden of Remembrance and a national monument sign located on opposite sides of the R25/42.

The beacon at the Garden of Remembrance holds the following inscription:

- 'In memory of the 94th Regiment (Later 2nd Bn Connaught Rangers) who were killed in action in this area on the 20th Dec 1880 or subsequently died of wounds. Erected by the Northern Transvaal Soldiers Grave Association. War Veteran Association 23rd April 1961.'



Figure 5- Quartzite stone walls on a ridge to the south of Bronkhorstspuit. Some of these stone walls served as dwellings for farm workers. It is also possible that some of the walls may have served as defensive structures during the Battle of Bronkhorstspuit (1880) (above).

The monument holds the following inscription:

- 'A Boer commando of about 250 men commanded by Cmde Frans Joubert defeated a British force of 257 men with 34 wagons under Lt Col Anstruther here on 20th December 1880. During the brief battle Lt Col Anstruther with 66 of his men and two Boers were killed. Historical Monument Commission 1999'.



Figures 6 & 7- Monument commemorating Battle of Bronkhorstpruit (1880) (above). GY01 close to southern option for the proposed new 400kV Bravo/Lulamisa power line (below).



6.1.3 Graveyards

At least five graveyards were observed close to options for the proposed new Bravo/Lulamisa power line. More graveyards may occur in or near the proposed power line corridors considering the lengths of the various options for the new power line.

The graveyards that were observed were the following;

6.1.3.1 Graveyard 01

This graveyard is located near the Boschkop Agricultural Holdings and holds the remains of approximately twenty individuals. Most of the graves are edged with cement strips and fitted with cement headstones. Some are also decorated with granite headstones.

This graveyard is located on a small holding next (south) to the southern option for the proposed new Bravo/Lulamisa power line.

6.1.3.2 Graveyard 02

GY02 is located on the northern shoulder of the R25, directly to the south of a quartzite reef running from the east to the west, more or less parallel with the R25.

Eskom's existing 400kV power line and the proposed northern option for the Bravo-Lulamisa power line is located along this reef and above (north) of the graveyard.

The graveyard contains an unknown number of graves as they are covered with tall grass. Several of the graves are fitted with granite headstones.

6.1.3.3 Graveyards 03-05

A number of graves are scattered in an area to the north of the Bravo power station at a point where the northern option for the proposed Bravo/Lulamisa power line turns towards the west. The three locations with single and more than one grave were recorded as three separate graveyards. At least one of the graves is associated with stone walls.



Figure 8- One of at least three graves near the northern option for the proposed near Bravo/Lulamisa power line (above). This grave is associated with a few stone walls (above).

6.1.4 Historical structures

Historical structures such as farmhouses, sometimes with outbuildings, occur in some instances close to some of the options for the proposed new Bravo/Lulamisa power line.

These structures were not geo-referenced due to time restrictions. It is also unlikely that they will be affected by the Eskom Project as Eskom do not outright demolish structures to make way for new power lines. However, cognisance should be taken of any structures older than sixty years which may be affected by the Eskom Project.

Heritage resources	Coordinates	Significance
Stone walls (SW01)	S 25°52'58.5" E 28°26'58.5"	HIGH
Stone walls (SW02)	S 25°51'29.2" E 28°43'18.0"	HIGH
Stone walls (SW03)	S 25°51'28.2" E 28°43'02.4"	HIGH
Stone walls (SW04)	S 25°51'18.3" E 28°40'29.9"	HIGH

Table 1- Coordinates for stone walls on quartzite ridges located in the general area where the Battle of Bronkhorstspuit occurred during 1880 (above). Some of these stone walls also served as residences dating from the early 20th century (above).

Heritage resources	Coordinates	Significance
Monument	25° 50.403' 28° 44.464'	HIGH
Garden of Remembrance	25° 50.425' 28° 44.518'	HIGH

Table 2- Coordinates for a monument and Garden of Remembrance associated with the Battle of Bronkhorstspuit (1880) on opposite sides of the R25/42 to the south Bronkhorstspuit (above).

Heritage resources	Coordinates	Significance
GY01	S 25° 51.590' E 28° 40.485'	HIGH
GY02	S 25° 57.603' E 28° 30.968'	HIGH
GY03	S 25°52'03.2" E 28°53'33.5"	HIGH
GY04	S 25°51'58.5" E 28°53'25.7"	HIGH
GY05	S25°51'54.6" E 28°53'10.2"	HIGH

Table 3- Coordinates for graveyards in close proximity of the various options for the 400kV Bravo/Lulamisa power line (above).

6.2 The significance of the heritage resources

It is possible that some of the types and ranges of heritage resources that were identified in and near the Eskom Project Area may be impacted by the Eskom Project. The significance of these various types and ranges of heritage resources therefore is indicated by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999).

6.2.1 Stone walls

Stone walled sites qualify as archaeological and historical remains and are protected by Section 38 of the National Heritage Resources Act (No 25 of 1999).

6.2.2 Memorabilia

The monument and Garden of Remembrance qualify as commemorative beacons which are protected by Section 37 of the National Heritage Resources Act (No 25 of 1999).

6.2.3 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).

6.2.4 Historical structures

Historical structures such as houses or outbuildings which are older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999).

6.3 Mitigating the heritage resources

The following mitigation measures have to be followed whenever any of the identified heritage resources may be affected by the Eskom Project

6.3.1 Stone walls

Stone walled sites must be avoided by pylons by placing the pylons on opposite ends of small stone walled sites. However, when stone walls cover large surfaces which represent cultural landscapes should rather be avoided by the power lines.

If stone walls have to be destroyed to make way for pylons and power lines these stone walled sites need to be subjected to Phase II investigations. These investigations require that the stone walled sites be documented by means of mapping the sites and possibly by means of small test excavations of the site. Phase II investigations can only be conducted by archaeologists accredited with the Association for Southern African Professional Archaeologists (ASAPA). The archaeologist has to obtain the necessary permit from the South African Heritage Resources Authority (SAHRA) which will authorise the Phase II investigation and subsequent destruction of the archaeological site.

6.3.2 Memorabilia

The memorabilia associated with the Battle of Bronkhorstspruit must be avoided by the Eskom Project as they represent heritage sites with outstanding significance. These memorabilia are also accessible to the public and are regularly visited by tourist or school groups or other interested individuals.

6.3.3 Graveyards

GY01 and GY02 as well as any other undiscovered graves and graveyards in the Eskom Project Area can be mitigated by following one of the following strategies, namely:

- Graveyards and graves can be conserved *in situ* beneath power lines. Pylons should be erected on opposite ends of graves or graveyards. Consequently, power lines can be strung across and above graveyards and graves. Conserving graves and graveyards in power line corridors create the risk that they may be damaged, accidentally, and that Eskom may be held responsible for such damages. Controlled access must exist for any relatives or friends who wish to visit graves or graveyards in power line corridors.

- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

6.3.4 Historical structures

Historical structures may not be affected (demolished, renovated, altered) by the Eskom Project *prior* to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA). The historical architect has to acquire a permit from the South African Heritage Resources Authority (SAHRA) *prior* to any of these structures and features been affected or altered as a result of the Eskom Project.

7 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA study for the proposed 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:

- Remains of stone walls which may be associated with the Battle of Bronkhorstspuit (1880).
- Memorabilia consisting of a monument and a Garden of Remembrance associated with the Battle of Bronkhorstspuit (1880).
- Graveyards with possible historical significance.
- Houses and other structures with possible historical significance.

The stone walls, memorabilia associated with the Battle of Bronkhorstspuit and graveyards were geo-referenced, mapped and discussed in this report (Figure 3, Tables 1-3). Their significance is indicated and mitigation measures are outlined should they be affected by the Eskom Project.

The importance of historical structures such as houses is merely pointed out as each and every historical structure in close proximity to the proposed transmission line corridors were not geo-referenced due to time restrictions and the fact that Eskom does not outright demolishes structures in order to make way for new power lines.

Remains from the more recent past have no significance and are not discussed in this report.

The significance of the heritage resources

It is possible that some of the types and ranges of heritage resources that were identified in and near the Eskom Project Area may be impacted by the Eskom Project. The significance of these various types and ranges of heritage resources

therefore is indicated by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999).

Stone walls

Stone walled sites qualify as archaeological and historical remains and are protected by Section 38 of the National Heritage Resources Act (No 25 of 1999).

Memorabilia

The monument and Garden of Remembrance qualify as heritage memorials which are protected by Section 37 of the National Heritage Resources Act (No 25 of 1999).

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).

Historical structures

Historical structures such as houses or outbuildings which are older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999).

Mitigating the heritage resources

The following mitigation measures have to be followed whenever any of the identified heritage resources may be affected by the Eskom Project

Stone walls

Stone walled sites must be avoided by pylons by placing pylons on opposite ends of small stone walled sites. However, when stone walls cover large surfaces which represent cultural landscapes they should rather be avoided by the power lines.

If stone walls have to be destroyed to make way for pylons and power lines these stone walls need to be subjected to Phase II investigations. These investigations require that the stone walled sites must be documented by means of mapping the sites and possibly by means of small test excavations of the site. Phase II investigations can only be conducted by archaeologists accredited with the Association for Southern African Professional Archaeologists (ASAPA). The archaeologist has to obtain the necessary permit from the South African Heritage Resources Authority (SAHRA) which will authorise the Phase II investigation and subsequent destruction of the archaeological site.

Memorabilia

The memorabilia associated with the Battle of Bronkhorstspuit must be avoided by the Eskom Project as they represent heritage sites with outstanding significance. These memorabilia are also accessible to the public and are regularly visited by tourist or school groups or other interested individuals.

Graveyards

GY01 and GY02 as well as any other undiscovered graves and graveyards in the Eskom Project Area can be mitigated by following one of the following strategies, namely:

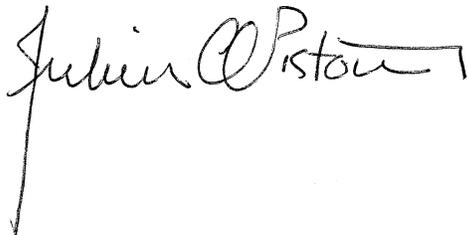
- Graveyards and graves can be conserved *in situ* beneath power lines. Pylons should be erected on opposite ends of graves or graveyards. Consequently, power lines can be strung across and above graveyards and graves. Conserving graves and graveyards in power line corridors

create the risk that they may be damaged, accidentally, and that Eskom may be held responsible for such damages. Controlled access must exist for any relatives or friends who wish to visit graves or graveyards in power line corridors.

- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

Historical structures

Historical structures may not be affected (demolished, renovated, altered) by the Eskom Project *prior* to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA). The historical architect has to acquire a permit from the South African Heritage Resources Authority (SAHRA) *prior* to any of these structures and features been affected or altered as a result of the Eskom Project.

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 &
Heritage Management Consultant
Member ASAPA**

8 SELECT BIBLIOGRAPHY

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

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

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

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

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

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

Pistorius, J.C.C. 2002. *A Heritage Impact Assessment (HIA) study for a new power line on the farm Rietvallei 397JS between Middelburg and Arnot in the Mpumalanga Province of South Africa*. Unpublished report done for Eskom, Menlyn.

Pistorius, J.C.C. 2005. *Final Heritage Impact Assessment (HIA) survey for a proposed new power line corridor for the Apollo-Dinaledi 400kV transmission line crossing the Rietvlei Nature Reserve east of Centurion in the Gauteng Province of South Africa*. Unpublished report for Eskom Megawatt Park.

Pistorius, J.C.C. 2005. A Phase I Heritage Impact Assessment (HIA) study for a proposed new 22kV power line (Premier Feeder) near Bronkhorstspuit in the Gauteng Province of South Africa. Unpublished report for Eskom Northern Region.

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

Van Schalkwyk, J.A., Pelsler, A. & Van Vuuren, C.J. 1996. Investigation of Late Iron Age sites on the farm Hatherley 331 JR, Pretoria district. *Research by the National Cultural History Museum*. 5:45-56.

Van Vollenhoven, A. 1997. *'n Kultuurhulpbronstudie van die Britse Blokhuisstelsel van die Tweede Anglo-Boere-oorlog in die voormalige Transvaal (Zuid-Afrikaansche Republiek)*. Pretoria: Nasionale Kultuurhistoriese Museum.