Prepared for:

ESKOM TRANSMISSION

EPA INTERNATIONAL

A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR ESKOM'S PROPOSED NEW 400kV POWER LINE ROUTE BETWEEN THE MATIMBA B POWER STATION AND THE MARANG SUBSTATION NEAR RUSTENBURG

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EXECUTIVE SUMMARY

Eskom is expanding transmission and generation infrastructure to ensure a sufficient generation capacity to sustain the country's economic growth. Consequently, the proposed Matimba Transmission Integration Project requires the construction of power lines as well as the construction and upgrading of substations. This project involves the construction of a 400kV power line from the Matimba B Power Station near Lephalale in the Limpopo Province to the Marang Substation near Rustenburg in the North-West Province.

The Matimba B-Marang power line may impact on any of the types and ranges of heritage resources that are outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1). Consequently, a Phase I Heritage Impact Assessment (HIA) study for the proposed 400kV Matimba B-Marang power line corridor as well as for the Spitskop and Marang Substations was conducted.

The Phase I HIA study had the following aims: to establish whether any types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act do occur in or near the Eskom Project Area and, if so, to determine the nature, the extent and the significance of these remains; to determine whether such remains will be affected by the proposed new development; and to evaluate what appropriate actions can be taken to reduce the impact of the development on such remains.

The Matimba B-Marang power line can be divided into two main stretches, namely a northern and a southern stretch. The southern stretch can be divided into two options namely a Western Matimba B-Marang option and an Eastern Matimba B-Marang option. The upgrading of the Spitskop and the Marang Substations are part of the Matimba Integration Project.

The main types and ranges of heritage resources that were identified in the Eskom Project Area consist of:

- Ruins and graves that were identified from the Surveyor General's 1: 50 000 topographical maps and which occur in or near the power line corridor.

- Stone walled settlements or clusters of these sites which occur along the Western Matimba B and the Eastern Matimba B-Marang Options and near the Marang Substation.

The majority of these heritage resources and graves were mapped. The levels of significance of these remains have been indicated as well as the magnitude of any impact on these heritage resources and graves (Figure 3 & Table 1).

It is possible that ruins on Geelhoutskloof 359JQ and Geluk 212KP may be impacted by the new power line. The nature, extent and significance of these 'ruins' (which have been identified from the 1: 50 000 topographical maps) is unknown. These remains usually do not have any outstanding significance as they date from the recent past.

However, if these ruins are older than sixty years they qualify as heritage resources and are subsequently protected by Section 34 of the National Heritage Resources Act (No 25 of 1999). If they are to be impacted by the development a permit to demolish these ruins have to be acquired from the North-West Provincial Heritage Resources Authority (NW PHRA). The permit would authorise the destruction of these remains.

Stone walled sites are abundant in and near the Eskom Project Area. These sites date from the Late Iron Age. These sites and clusters of sites (cultural landscapes) hold high significance and are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999).

The following stretches of the proposed Matimba B-Marang power line together with the Marang Substation may have a negative impact on single stone walled sites or clusters of stone walled sites, namely (Table 1):

- The Western Matimba B-Marang option: The stretch runs from Paardekraal eastwards and then south-eastwards to the Marang Substation. Stone walled settlements occur at most of the isolated, scattered norite hills close to the Marang Substation.
- The 1st Eastern Matimba B-Marang option: The stretch runs between Makgope/Malepe mountains and the southernmost point. The eastern end of

Makgope mountain is covered with stone walled sites which may be impacted by the power line.

- The 2nd Eastern Matimba B-Marang option: This stretch runs from the southern most turning point along the western edge of the Thaba-ea-Nape range of mountains to the Marang Substation. This stretch of the Thaba-ea-Nape mountain range is covered with a number of stone walled sites.
- The Marang Substation: Kopjes to the north and south of Marang Substation are associated with stone walled settlements. Upgrading of the Marang Substation may have an affect on these settlements.

The following mitigating circumstances as well as opportunities for mitigation of the stone walled sites or the complexes of stone walled sites exist, namely (Table 2):

- Stone walled settlements (and norite kopjes) exist along the Western Matimba B-Marang option which runs from Paardekraal to the Marang Substation. The norite hills and settlements along this stretch are not numerous. Neither do these settlements (and kopjes) cover large surface areas. It is possible that the stone walled settlements (and kopjes) could be avoided if this stretch of the power lined is thoroughly planned.
- The 1st Eastern Matimba B-Marang option runs between Makgope/Malepe mountains and the southern most point of the power line. The eastern end of Makgope is covered with stone walled sites. It is possible to avoid these sites if the Matimba B-Marang power line is constructed to the east of Eskom's existing power line which runs through the Makgope-Malepe poort.
- The 2nd Eastern Matamba B-Marang option runs from the southern most turning point along the western edge of the Thaba-ea-Nape range of mountains to the Marang Substation. This stretch of the Thaba-ea-Nape range of mountains is covered with a large number of stone walled sites. One of Eskom's existing power lines already runs along this corridor. If the proposed new Matimba B-Marang power line runs parallel with the existing power line it may avoid the stone walled sites and clusters of sites along this stretch.
- The Marang Substation is associated with kopjes with stone walled settlements located to the north and to the south of the substation. Any upgrading of the Marang Substation may have an affect on these settlements. However, the

upgrading of the Marang Substation may not require more space which subsequently will not cause an impact on these sites.

Graves and graveyards hold high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

It seems as if a graveyard along the Makgope/Malepe mountains to the southern most turning point (1st Eastern Matimba B-Marang Option) may be affected by the new power line.

This graveyard, however, is located some distance to the west of the 1st Eastern Matimba B-Marang option. It needs not to be affected if the new power line is constructed to the east of Eskom's existing power line. The graveyard can also be mitigated by following one of two strategies, namely:

- The graves can be kept *in situ* in the proposed new power line corridor. However, the graves have to be demarcated (with a fence) to prevent that any (accidental) damage is inflicted on the graves during the construction of the power line. Access to the graveyard must be possible after the power line has been constructed.
- The graves can 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.

Summary:

The most significant impact on stone walled sites and complexes of stone walled sites (cultural landscapes) may occur along the 2nd Eastern Matimba B-Marang option considering the large number of sites and complexes of sites which occur along this option. The Western Matimba B-Marang option therefore may be a preferred option if the 2nd Eastern Matimba B-Marang option's new trajectory along Eskom's existing power line may not guarantee the unaffected continued existence of stone walled sites and cultural landscapes along this option.

CONTENTS

1 INTRODUCTION

Eskom is expanding transmission and generation infrastructure to ensure a sufficient generation capacity to sustain the country's economic growth. The Matimba and Mmamabula (Botswana) coal beds have been identified as sources for future power generation. Eskom's proposed new Matimba B power station will be established 10km from the existing Matimba Power Station near Lephalale (Ellisras) in the Limpopo Province of South Africa. Matimba B must commence with operation in 2010 and it has to be connected to the transmission network.

Consequently, the proposed Matimba Transmission Integration Project requires the construction of power lines as well as the construction and upgrading of substations. This project involves the following activities:

- The establishment of a 400kV power line from the Matimba B Power Station to the Marang Substation near Rustenburg. (This power line needs not to go through the Spitskop Substation near Northam).
- The establishment of 2X400kV power lines from the Matimba B Power Station to the Dinaledi Substation near Madibeng (Brits). (It is required that these power lines go through the Spitskop Substation).
- The upgrading of the Marang, Spitskop and Dinaledi Substations to accommodate the additional capacity they will receive.

This study only focuses on the Phase I Heritage Impact Assessment (HIA) study which has been done for the 400kV power line corridor that runs between the Matimba B Power Station near Lephalale in the Limpopo Province and the Marang Substation near Rustenburg in the North-West Province. The proposed new power line will be approximately 270km long.

2 AIMS WITH THIS STUDY

Eskom's proposed new 400kV Matimba B-Marang power line will cross parts of both the Limpopo and the North-West Provinces of South Africa. The power line will be confined to a clearly defined power line corridor which was divided into a northern stretch and a southern stretch. The southern stretch has two options. These stretches and options for the proposed new Matimba B-Marang power line also represent the Eskom Project Area.

Eskom's proposed 400kv Matimba B-Marang power line may impact on any of the types and ranges of heritage resources that are outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) as any of these heritage resources may be located in or near the proposed new Matimba B-Marang power line corridor. Eskom and PBA International therefore commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) study for the proposed new Matamba B-Marang 400kV power line 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) (Box 1) do occur in or near the Eskom Project Area and, if so, to determine the nature, the extent and the significance of these remains;
- to determine whether such remains will be affected by the proposed new power line; and
- to evaluate what appropriate actions could be taken to reduce the impact of the proposed new power line on such remains.

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 (No 25 of 1999) outlines the following types and ranges of heritage resources that qualify as part of the national estate:

(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 palaeontological 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 in terms of the Human Tissue Act (Act 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 palaeontological objects, 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 (Act 43 of 1996).

The National Heritage Resources Act (Act 25 of 1999, Sec 3) also distinguishes nine criteria for a place and/or object 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; and/or

(i) its significance relating to the history of slavery in South Africa.

3 METHODOLOGY

This Phase I HIA study was conducted by means of:

- Travelling the length of the proposed new power line corridors with a helicopter, vehicle and surveying selected spots of the Eskom Project Area on foot.
- Surveying literature relating to the pre-historical and historical context of the Eskom Project Area.
- Consulting maps of the Eskom Project Area.
- Consulting archaeological (heritage) data bases such as the one kept at he North-West Provincial Heritage Resources Agency (NW PHRA).
- Relying on experience gained from twenty years of fieldwork in the Eskom Project Area during which time numerous surveys were conducted for mines, residential areas, power lines and other types of development projects.
- Integrating all information obtained from the literature survey, maps, data bases and previous surveys with the evidence derived from the fieldwork.

3.1 Fieldwork

The proposed Matimba B-Marang power line options were surveyed by means of flying the lengths of the major power line corridors with a helicopter, travelling stretches of the proposed new power line corridors with a vehicle and surveying selected spots along the power line corridors on foot.

3.2 Databases, literature survey and maps

Databases kept and maintained at institutions such as the North-West Heritage Resources Agency (SAHRA) in Mafekeng and the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria were consulted

to determine whether any heritage resources had been identified during earlier archaeological surveys in the project area.

Literature relating to the pre-historical and the historical unfolding of the Eskom Project Area was briefly reviewed. Pre-historical and historical events relating to the broad Eskom Project Area were highlighted in order to contextualise the project area and to determine what possible types and ranges of heritage resources may be expected to occur in or near the proposed Matimba B-Marang power line corridors.

In addition, the Eskom Project Area was also studied by means of the 1:50 000 topographical maps and the 1:250 000 map on which the project area appears.

3.3 Earlier surveys

The author has conducted numerous surveys and excavations in the Eskom Project Area during the last two decades. The surveys were conducted for granite, platinum and chrome mines. Excavations of approximately twenty settlements were undertaken while conducting research on the origins and history of the Tswana. Experience gained from these surveys and excavations contributed to knowledge about the presence of heritage resources in or near power line corridors (see Part 8, 'Select Bibliography').

3.4 Mapping heritage resources

Known heritage resources (including cultural landscapes) as well as 'ruins' and 'graves' indicated on the Surveyor General's 1: 50 000 topographical maps on which the Eskom Project Area appears were mapped by GIS Corporation.

3.5 Assumptions and limitations

It must be pointed out that this Phase I HIA study did not succeed in identifying all possible types and ranges of heritage resources along the proposed new Matimba B-Marang power line corridors because the total length of the proposed new power line corridor could not be surveyed in full.

This Phase I HIA study has to be followed by a pedestrian (foot) survey of selected stretches of the final power line corridor in order to identify any possible impacts on heritage resources which may occur along these stretches of the proposed new power line corridor.

4 A BRIEF CONTEXT OF THE ESKOM PROJECT AREA

4.1 Location

Eskom's proposed new power line corridors will run from Lephalale (Ellisras) in the Limpopo Province in the north to the Marang Substation in the Bafokeng (Rustenburg) District in the south. The proposed new power line will cross two provincial boundaries, namely that of the Limpopo Province and the North-West Province of South Africa. The power lines will also cross two major ecozones, namely savannah bush veldt in the north and the Bankeveld in the south, each zone characterised by particular types and ranges of heritage resources relating to the history of various cultural groups who occupied these ecozones from the earliest times.

4.2 The nature of the Eskom Project Area

The Eskom Project Area incorporates a northern bushveld savanna ecozone that stretches from Lephalale in the north to a series of norite kopjes in the south. The Bankeveld is an intermediary zone between the northern bushveld and the grass veld of the Highveld stretching further to the south. The northern bushveld and the Bankeveld ecozones do not only harbour significantly different types and ranges of heritage resources, but also reflect marked differences in the number of heritage resources that occur in each of these ecozones.

4.2.1 The bushveld in the north

The northern bushveld is characterised by shale with traces of sediments near the Limpopo River in the far west. A patch with arenite, which is the dominant material in the Waterberg Mountain mass further to the east, outside the Eskom Project Area, occurs near the northern stretch of the power line. The vegetation is predominantly sweet Bushveld although thickets and clumps of bush and high

fynbos occur. Towards the south vegetation described as part of the Western Sandy Bushveld encroaches. Degraded forest and woodland occurs towards the northern stretch of the power lines.

No conspicuous topographical features other than consistent level sandy plains covered with open savannah bush mark this part of the project area which is also home to several scattered pans. Agricultural fields, many abandoned today, dot the project area where the Matimba B Power Station will be established.

The bushveld savanna was sparsely populated by humans in the past. However, occupation started at an early period so that humans may have been present in the area over a long time span, but on a limited scale. This occupation occurred from the Stone Age, hundreds of thousands of years ago, throughout the Early Iron Age which covers the first millennium AD and the historical period which commences with the arrival of the first colonial hunters, traders and farmers.

Figure 1- The northern bushveld part of the Matimba B-Marang Project Area seen from the air. Outstretched open savannah veldt with little surface water is a dominant feature of the landscape. This inhospitable environment was not conducive for human settlement in the past (above).

4.2.2 The Bankeveld in the south

The Bankeveld is a narrow strip of land between the northern bushveld and the southern grassvelds of South Africa and can be divided into the Western, Central and the Eastern Bankeveld. Only the Central Bankeveld is important to this report. The Central Bankeveld can be roughly demarcated by Krugersdorp in the south, the Pienaars River to the north, Bronkhorstspruit in the east and the Pilanesberg to the west.

The Central Bankeveld is covered by older grabbo penetrated by younger vulcanic magma which formed a series and chains of pyramid-shaped granite hills from the Pilanesberg in the north-west to Onderstepoort near Pretoria in the east. These hills, as part of the Magaliesberg valley, represent a unique ecozone characterised by grassveld savanna and near wooded valleys. The region has abundant surface water supplies. The Pienaar, the Moretele, the Hex and the Apies Rivers all drain their waters into the Crocodile River. Numerous Late Iron Age Tswana chiefdoms emerged during the last four centuries in this part of the North-West.

Figure 2- The Bankeveld characterises the southern part of the Eskom Project Area. This ecozone is home to a series of granite kopjes running from Onderstepoort *via* Madibeng to the Pilanesberg. Along the base lines of these kopjes thousands of stone walled sites occupied by ancestral Tswana clans and chiefdoms such as the Kgatla, Kwena and Fokeng occur (above).

4.3 Heritage resources in the Eskom Project Area

Different types and ranges of heritage resources occur in the bushveld in the north and in the Bankeveld ecozone in the south. Whilst heritage resources are scarce, scattered and limited in types and ranges in the northern bushveld, a wider variety of heritage resources occur in the southern Bankeveld with stone walled sites, particularly, in abundance. These sites are also clustered covering large surface areas which qualify as cultural landscapes.

4.3.1 Heritage resources in the bushveld in the north

Hunter gatherers from the Stone Age, including a few who left rock paintings during the last 20 000 years in the mountainous Waterberg to the east of the Project Area, lived in the bushveld from as early as the Middle Stone Age (MSA), 200 000 years ago. MSA and Late Stone Age (LSA) tools were observed along the banks of the Mokolo (Mogol) River and on farms to the east of the project area. At Nelsonskop, a small protrusion on the north-eastern border of the project area engravings of animal spoor, cupules and other incisions were found on a face of this hill. Most of the Stone Age sites in the bushveld were open (surface) sites which imply that most of the artefacts on these sites occur 'out of context'.

Hunter-gatherers were followed by the first agro-pastoralists who lived in semi-permanent villages and who practised metal working during the last two millennia, the so-called Iron Age. Whilst the Early Iron Age (EIA) is marked by small scattered sites with (elaborately) decorated pottery and in many instances with iron smelting, Late Iron Age (LIA) sites may occur in clusters covering large tracks of land constituting cultural landscapes. The area close to the junction between the Limpopo River and the Matlabas River, on both sides of the Limpopo River, west of the Eskom Project Area, have been home to early

farmers who lived in small scattered villages near these water sources. Here, they utilized pieces of land close to the banks of the rivers or near confluences between these rivers and small streams. They planted crops while small numbers of cattle and small stock were kept when grazing and shrubbery allowed for stock keeping.

EIA as well as LIA communities did not prefer the flat outstretched sand veldt of the Eskom Project Area for habitation or for farming. The scarcity of surface water for humans and animals; low annual summer rainfalls, high temperatures with accompanying high evaporation rates and soils which lacked nutrients were not conducive to crop planting. The absence of all year round grazing also did not encourage mixed farming in this part of the project area. Late Iron Age occupation on the scale that marked the Ga-Seleka and Shongwane areas to the north-east of Lephalale did not occur in the Eskom Project Area.

No historically known tribal groupings or clans occupied the Eskom Project Area during the LIA or the historical period. Communities known as the 'Vaalpense' (mixed Negroid and San) lived in the area. Their descendants can still be found here. These communities were nomadic hunters and herders before they became employed by the first colonial farmers.

Farm houses with outbuildings, family graveyards, cattle posts, outlying bore holes with drinking troughs and grazing fields lead to the establishment of cultural landscapes of some proportions in the Eskom Project Area from the second half of the 19th century. First generation homesteads, 'hartbeeshuise' constructed with clay or clay bricks and thatched roofs, have all disappeared by now and have been replaced with second and third generation farm residences. Some of these, as well as farm stores along dirt roads in the project area, may be older than sixty years. In general, however, as elsewhere in the larger region, farm homesteads with associated infrastructure and activity areas have been transformed as a result of changing subsistence patterns

4.3.1 Heritage resources in the Bankeveld in the south

The emergence of the earliest ancestors of modern humans, 2-3 million years ago, occurred in the Krugersdrop area, close to the project area. The remains of *Australopithecine* and *Homo habilis* were found in dolerite caves and underground dwellings at Sterkfontein and Swartkrans near Krugersdorp. *Homo habilis*, one of the Early Stone Age hominids, is associated with Oldowan artefacts which include crude implements manufactured from pebble stones.

The Acheulian industrial complex replaced the Oldowan industrial complex during the Early Stone Age (ESA). This phase of human existence was widely distributed across the world and is associated with *Homo Erectus* who manufactured hand axes and cleavers from as early as 500 000 years ago. One of the earliest discoveries of an Acheulian site was made at Wonderboompoort, in a part of the Magaliesberg. Late Auchelian hand axes have been found in the Bankeveld near the Eskom Project Area.

MSA sites dating from as early as 200 000 years ago have been found all over South Africa. MSA hunter-gatherer bands lived and hunted to the north and south of the Magaliesberg. MSA people looked like modern humans. They lived in small bands and occupied camp sites near water but also started to use caves as dwellings. They manufactured a wide range of stone tools, including blades and points that may have been hafted on long wooden sticks that were used as spears.

The Late Stone Age (LSA) commenced 20 000 years ago, or somewhat earlier. Various types of stone (lithic) industries that are scattered across the country are associated with the San and Khoi-Khoi people who are associated with the Late Iron Age and the historical period. The San were renowned as formidable hunter-gatherers, while the Khoi-Khoi also herded with cattle and small stock during the

last two thousand years. LSA people manufactured tools that were small but highly effective, such as arrow points and knives. They are also known for their rock art skills.

Early Iron Age (EIA) farming communities practised a mixed economy consisting of plant cultivation and stock herding near the Magaliesberg during the first half of the first millennium AD. 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.

During the Late Iron Age (LIA) farming was practised in the northern, central and eastern parts of the country. Extensive stone walled sites occur in the Thaba-ea-Nape range of mountains that runs from the east to the west across the Eskom Project Area. These stone walled sites are associated with ancestor rulers of the Tswana such as the Kwena, Kgatla and Fokeng who today live in the Madibeng-Marikana and Rustenburg areas.

Numerous pre-*difaqane* and *difaqane* wars were fought during the last quarter of the 18th century and the first quarter of the 19th century in the Bankeveld. These wars led to the displacement of large numbers of Tswana clans in the Bankeveld.

Internal strife between the various Tswana chiefdoms also seems to have been on the increase from the latter half of the 18th century onwards. Paternal relatives fought against each other to attain the chieftaincy of the various Tswana chiefdoms. Succession disputes led to the splintering of chiefdoms into a growing number of independent spheres of influence in the Bankeveld.

The *difaqane* wars were caused by the Ndebele (Matabele) of Mzilikazi who arrived from the Vaal River region to occupy the Bankeveld in August 1827. The Matabele destroyed the Kwena Môgôpa, the Kgatla and what had remained of the Pô after an earlier defeat by the Pedi.

The Ndebele established several settlement complexes in this region from whence they maintained their grip on the indigenous population. Four of these Zulu/Nguni residences (*imisi*) and military kraals (*amakhanda*) have been discovered during the course of archaeological surveys in the Central Bankeveld. Two of these village complexes are located near modern Rustenburg and Madibeng respectively. Both these villages were visited and painted by the first white men who entered the Bankeveld, namely Charles Bell, who escorted Andrew Smith's expedition in June 1835, and Cornwallis Harris, who travelled and hunted extensively in the Bankeveld during December 1836.

During the early 19th century, travellers, traders and missionaries visited what is today the Bankeveld where they encountered the devastated Tswana chiefdoms. Amongst the travellers who moved through the Bankeveld were the traders Robert Schoon and William McLuckie, who visited the Ndebele village near Rustenburg in August 1829. They were followed two months later by the missionary Robert Moffat, who also passed this village and visited Mzilikazi in an *umuzi* near what is today Pretoria. In June 1835, Charles Bell and other members of Andrew Smith's expedition visited the Matabele village near Rustenburg. One year later, in December 1836, Cornwallis Harris visited and painted emHlalandlela near Madibeng.

These early travellers were followed from the 1840's by the first colonists who settled in various places in the Magaliesberg such as Rustenburg, Marikana, Schaapkraal, Hekpoort and Madibeng (Brits).

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. The British built masonry forts, redoubts, trenches and barbed wire fences to curtail the movements of Boer commandos. In open terrain, blockhouses were spaced roughly one kilometre apart and linked with barbed wire fences. Cliffs prevented troops from crossing mountains, so

blockhouses were built at points were it was possible to cross such mountain ranges.

The 20th century saw the introduction of large-scale dry land farming on the Highveldt, the Bankeveld and further to the north in the bushveld. Farm homesteads with outbuildings and family graveyards became common place across vast expanses of the country side. Simultaneously, black townships developed, many later became part of homelands such as Bophuthatswana and Lebowa. The 20th century is therefore associated with numerous formal and informal homesteads which are older than sixty years, many associated with small family graveyards that are scattered across the South African landscape.

After the discovery of the Merensky Reef in 1929, economy activities in the Bankeveld near the Eskom Project Area gradually changed from farming into platinum and chrome mining. What started as small scale mining activities north of the Magaliesberg during the 20th century was soon eclipsed by the rise of the platinum mining complex near Rustenburg. The discovery of the Merensky Reef and the accompanying platinum boom was soon followed by the establishment of numerous chrome and norite mines in the North-West Province.

5 THE PHASE I HERITAGE IMPACT ASSESSMENT STUDY

The proposed Matimba Transmission Integration Project requires the construction of a 400kV power line from Matimba B Power Station to the Marang Substation near Rustenburg and the upgrading of the Spitskop and Marang Substations.

The Phase I HIA study for the 400kV power line running between Matimba B and Marang is first discussed and thereafter the Phase I survey for the Spitskop and Marang Substations.

5.1 The survey for the Matimba B-Marang power line corridor

5.1.1 The main stretches of the Matimba B-Marang power line

The Matimba B-Marang power line can be divided into two main stretches, namely a northern and a southern stretch. The southern stretch can be divided into a western and an eastern option. The northern stretch runs from the Matimba B Power Station southwards to a point to the east of Mogwase (at the Pilanesberg) and the southern stretch runs from east of Mogwase to the Marang Substation in the south. The southern stretch has two possible options, namely a Western Matimba B-Marang option and an Eastern Matimba B-Marang option.

The various stretches and options for the proposed new Matimba B-Marang power line and known heritage resources close to these stretches are now discussed.

Figure 3 – The Matimba Integration Project: The Eskom Study Area for the 400kV Matimba B-Marang power line corridor and for the Spitskop and Marang Substations.

Note the presence of ruins, graves and stone walled settlements in and near the Eskom Project Area.

5.1.1.1 The northern stretch

The most northern stretch for the Matimba B-Marang power line is identical with the northern stretch for the Matimba B-Dinaledi power line.

The northern stretch can be divided into the following shorter stretches (parts), namely:

- From Matimba B Power Station bending westwards two times before running parallel for a short distance with the Sandloop River then bending south-westwards skirting the western edge of the Waterberg mountain mass (on Geelhoutskloof 359LQ) before bending south-westwards again in order to run to the Matlabas River.
- From the Matlabas River south-westwards across a level land mass to the Crocodile River. This stretch covers open savannah with no outstanding topographical features.
- From the Crocodile River southwards, following several jinks to the west and the east to the farm Zoetdoorns 259KP.
- From Zoetdoorns 259KP eastwards to Spitskop Substation. This stretch runs across an extensive agricultural field (Application 358KP), the southern tip of the Mponyane mountain range (Kraalhoek 399KQ), between agricultural fields (Haakdoorn 6JQ and Varkensvlei 403KQ), across a second agricultural field (Spitskop 410KQ) and then slightly to the north of Sefikile mountain to Spitskop.
- From Spitskop southwards to a bend to the south-east (on Varkenfontein 73JQ) and then running to the split (east of Mogwase) from where the Matimba B-Marang power line may follow a western option or an eastern option to the Marang Substation.

Known heritage resources

The following known heritage resources occur along the northern stretch for the Matimba B-Marang power line corridor:

- A single ruin on Geelhoutskloof 359LQ.
- At least five ruins occur close to the Crocodile River's banks (close to the eastern option for the Matimba B-Dinaledi power lines). One of these ruins may be impacted by the Matimba B-Marang power line corridor (which is also the western [central] Matimba B-Dinaledi option).
- A single ruin on Geluk 212LQ.
- Stone walled sites along the base of Sefikele kopje. These sites have been damaged as a result of the village with the same name which has being established around the foot of the kopje.
- Graves occur a considerable distance to the south-west of Spitskop Substation

5.1.1.2 The southern stretch

The southern stretch of the Matimba B-Marang power line may follow one of two options, namely the Western Matimba B-Marang option or the Eastern Matimba B-Marang option. These two options with know heritage resources near these options are now discussed

5.1.1.2.1 The Western Matimba B-Marang option

This Western Matimba B-Marang option can be divided into the following parts:

- From the dividing point east of Mogwase running southwards nearly parallel with the Northam road and then through two jinks (to the west and to the east) before turning with a ninety degree turn to the west (on Kameelfontein 80JQ).

- Westwards from Kameelfontein 80JQ and then again bending south-westwards (on Zanddrift 82JQ) running southwards to the west of the village of Monnakato and Maile. Here, the power line also passes to the west of the kopje Tlhating.
- From Tlhating along the western border of Welbekend 117JQ and to the west of the Ga Nape complex of sites where a large concentration of stone walled sites occur. (The Ga Nape Heritage Park is part of Bafokeng Royal Resources' Master Development Plan).
- From Ga Nape south-westwards and then south-eastwards to Paardekraal.
- From Paardekraal eastwards and then south-eastwards to the Marang Substation. Stone walled settlements occur at most of the isolated scattered norite hills close to the Marang Substation.

Known heritage resources

The following known heritage resources occur along the western Matimba B-Marang option:

- The Ga Nape complex of sites are located at Ga Nape and the surrounding smaller norite hills in this part of the Thaba-ea-Nape range of mountains. Bafokeng Royal Resources (BRR) have earmarked the farm Welbekend 117JQ to be developed as a Heritage Park.
- Stone walled settlements occur at most of the isolated, scattered norite hills that are located on the level turf veldt close to the Marang Substation.

5.1.1.2.2 The Eastern Matimba B-Marang option

The Eastern Matimba B-Marang option can be divided into the following parts:

- From a point to the east of Mogwase southwards to the village of Tautanana where the line bends slightly to the south-east running to the west of Moordkop (Potgietersfontein 125JQ). Moordkop is a historical

significant settlement as Mzilikazi's Ndebele killed a number of Griqua at this kopje in 1832.

- From the west of Moordkop across the Hex River (Kafferskraal 133JQ) southwards between Makgope (Nooitgedacht 282JQ) and Malepe (Nooitgedacjht 293JQ). Large numbers of stone walled settlements occur in the Makgope mountain range.
- From Makgope and Malepe south-eastwards, running parallel with the Marikana dirt road between the mountains Mothanyane and Visierskerf to the most southern turning point of the power line. This stretch runs across a level plain between the norite kopjes of the Thaba-ea-Nape range of mountains. A graveyard occurs near this stretch of the power line.
- From the most southern turning point westwards to a point (on Hoedspruit 299JQ) where the power line bends to the north-west in order to run across the western edge of the Thaba-ea-Nape range of mountains to the Marang Substation. This stretch of the Thaba-ea-Nape mountain range is covered with a number of stone walled sites.

Known heritage resources

The following known heritage resources occur along the eastern Matimba B-Marang option:

- Moordkop is a historical significant settlement as Mzilikazi's Ndebele killed a number of Griqua at this kopje in 1832.
- Large numbers of stone walled settlements occur in the Makgope mountain range, particularly on its eastern end.
- A graveyard occurs between Makgope/Malepe and the southern most turning point.
- The stretch of the power line running from the southern most turning point northwards along the western edge of the Thaba-ea-Nape mountain range is covered with clusters of stone walled sites. This stretch will follow an existing power line.

5.2 The survey for the Spitskop and Marang Substations

5.2.1 Spitskop Substation

The Spitskop Substation is located on level land south-west of Northam and to the east of a village and kopje with the same name, namely Sefikile. Stone walled sites occur along the base of this kopje. However, the larger part of this complex has been damaged or destroyed when the modern village of Sefikile was established and gradually expanded around the base of this kopje.

A graveyard is located to the south-west of Spitskop Substation. However, the graveyards will not be affected by the upgrading of the substation.

5.2.1 Marang Substation

The Marang Substation is located on level turf veld to the east of new expanding suburbs located to the west of the substation.

A number of scattered norite kopjes occur to the north, north-east and to the south of the substation. Stone walled settlements occur along the base lines as well as between these kopjes.

Northern Stretch	**Heritage Resources**	**Level of significance**	**Magnitude of impact**
●Matimba B-Matlabas River	Ruin, Geelhoutskloof 359	**LOW**	**MEDIUM-HIGH**
●Matlabas R- Crocodile River	At least five ruins close to the Crocodile R (one may be impacted)	**LOW**	**LOW**
●Crocodile R-Zoetdoorns 259	Ruin on Geluk 212	**LOW**	**MEDIUM-HIGH**
●Zoetdoorns-Spitskop	Stone walled sites, base of Sefikele kopje	**LOW**	**LOW**
	Graves south-west, Spitskop	**HIGH**	**LOW**
Southern Stretch (Western/Eastern option)	**Heritage Resources**	**Level of significance**	**Magnitude of impact**
Western Matimba B-Marang			
●Mogwase-Kameelfontein 80			
●Kameelfontein-Tlhating			
●Tlhating-Ga Nape	Stone walled sites at Ga Nape	**HIGH**	**LOW**
●Ga Nape Paardekraal			
●Paardekraal-Marang	Stone walled sites close to kopjes near Marang	**HIGH**	**LOW-MEDIUM**
Eastern Matimba B-Marang	**Heritage Resources**	**Level of significance**	**Magnitude of impact**
●Mogwase-Moordkop	Moordkop	**HIGH**	**LOW**
●Moordkop-Makgope/Malepe	Stone walled sites along Makgope's eastern end	**HIGH**	**LOW-MEDIUM**
●Makgope/Malepe-southern turning point	Graveyard close to the power line	**HIGH**	**LOW**
●Southern turning point-Marang	Stone walled sites along western edge of Thaba-ea-Nape mountains	**MEDIUM-HIGH**	**LOW-MEDIUM**
Marang Substation ●August Mokgatles	**Heritage Resources**	**Level of significance**	**Magnitude of impact**
	Stone walled sites near substation	**HIGH**	**LOW-MEDIUM**

Table 1- Known heritage resources along the proposed 400kV Matimba B-Marang power line corridor and the Marang Substation, their levels of significance and the magnitude of the impact on these heritage resources (above).

6 THE SIGNIFICANCE OF THE HERITAGE RESOURCES

The main types and ranges of heritage resources that were identified in the Eskom Project Area consist of:

- Ruins and graves that were identified from the Surveyor General's 1: 50 000 topographical maps and which occur in or near the power line corridor.
- Stone walled settlements or clusters of these sites which occur along the Western Matimba B and the Eastern Matimba B-Marang Options and near the Marang Substation.

6.1 Levels of significance of the heritage resources

The majority of these heritage resources and graves were mapped. The levels of significance of these remains have been indicated as well as the magnitude of any impact on these heritage resources and graves (Figure 3 & Table 1).

6.1.1 The significance of the ruins

It is possible that ruins on Geelhoutskloof 359JQ and Geluk 212KP may be impacted by the new power line. The nature, extent and significance of these 'ruins' which have been identified from the 1: 500 000 topographical maps is unknown. These remains were mostly constructed with durable material such as brick and cement walls and usually do not have outstanding significance as they date from the more recent past.

However, if these ruins are older than sixty years they do qualify as heritage resources and are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999).

6.1.2 The significance of the stone walled sites

Stone walled sites are abundant in and near the Eskom Project Area. These sites date from the Late Iron Age. They are mostly associated with kopjes and mountains, where norite and dolerite were used in the construction of these sites. The sites are usually single settlements on kopjes or are clustered along the lower foot slopes and spurs of large mountains.

The clusters of stone walled sites are composed of varying numbers of individual sites (*dikgôrô*) that were grouped together to form villages which covered large areas. The majority of the stone walled sites are confined to mountains and kopjes on the farms Nooitgedacht 282JQ, August Mokgatles, Welbekend 117JQ and Beestkraal 290JQ.

The following settlement types can be distinguished:

- Tswana villages (singular *motse*, plural *metse*) which were composed of a single village (*kgôrô*) or a conglomeration of villages (*dikgôrô*). A typical *kgôrô* is characterized by an outer scalloped wall that encircles central kraal complexes that were usually linked together. The outer scalloped walls still contain the remains of dwellings (huts) within their surrounding yards (*malapa*) that were occupied by the various family groups (*masika*), central kraal complexes composed of courts (*makgotla*) and enclosures for domestic stock. Tswana sites are common throughout the Project Area.
- There are some sites that are composed of long terrace walls that are 'stepped' down the slopes of mountains. The terrace walls are associated with a few small and large enclosures. These sites are not demarcated with clear outer boundary walls. It is possible that these sites may have been built by Ndebele people.
- There were some sites with spatial compositions that could not be interpreted as yet, due to the dense vegetation cover on these sites at the

time of the year when the study was done. However, it is expected that settlement types not previously recorded may occur in the clusters that were discovered in the Eskom Project Area.

The stone walled sites in and near the Eskom Project Area can be rated as significant in terms of criteria such as the following:

- The Thaba-ea-Nape range of mountains with individual mountains in this range such as Malejane, Nape, Mofothelo, Motlhabe, etc are historical beacons, as they are associated with human occupation during the last three hundred and fifty to four hundred years.
- These sites and clusters of sites represent different villages which were occupied simultaneously by several thousands of people who lived in these villages from pre-historical times (AD1650) well into the historical period. (Some of the sites may still have been occupied during the Transvaal Anglo War [1899-1902]).
- Many of the sites and clusters of sites with their surrounding landscape represent 'cultural landscapes or townscapes' which are unique, as these sites and complexes of sites reflects a regional history, in particular that of Kwena clans such as the Bafokeng.
- These townscapes incorporate intangible heritage attributes such as a sense of place, the majesty of mountains associated with the social (political) importance of rulers, activity areas which served as pastures for stock, wood and water collecting spots, possible places of sacrifice and worship, etc.
- These site complexes are unique in the context of the Late Iron Age, as they contain settlements that are characteristic of Tswana and mixed Tswana/Zulu (Ndebele) populations.
- Some of the settlements and clusters of settlements are in an excellent (pristine) condition and have not been affected by any development in the past. (However, its is also true that many sites and clusters of sites have

been affected in one way or another by mining or other development activities in the past).

- These sites offer outstanding research opportunities, as they represent archaeological 'laboratories' which can be utilised for decades to come. Tangible heritage remains in the form of artefacts, structures and features are in abundance in the archaeological deposits that are associated with the sites.
- The village complexes offer exceptional educational and tourism potential, if they are developed according to correct scientific and museological principles.

6.1.3 The significance of graves and graveyards

Graves and graveyards hold high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

6.2 Possible impact on the heritage resources

The magnitude of the impact of the various stretches of the Matimba B-Marang power line and the Marang Substation on various heritage resources and graves has been indicated and is discussed below (Table 1).

6.2.1 Possible impact on ruins

It is possible that ruins on Geelhoutskloof 359JQ and Geluk 212KP may be impacted by the new power line.

6.2.2 Possible impact on stone walled sites

The following stretches of the proposed Matimba B-Marang power line together with the Marang Substation may have a negative impact on single stone walled sites or clusters of stone walled sites, namely (Table 1):

- The Western Matimba B-Marang option: The stretch runs from Paardekraal eastwards and then south-eastwards to the Marang Substation. Stone walled settlements occur at most of the isolated, scattered norite hills close to the Marang Substation.
- The 1st Eastern Matimba B-Marang option: The stretch runs between Makgope/Malepe mountains and the southernmost point. The eastern end of Makgope mountain is covered with stone walled sites which may be impacted by the power line.
- The 2nd Eastern Matimba B-Marang option: This stretch runs from the southern most turning point along the western edge of the Thaba-ea-Nape range of mountains to the Marang Substation. This stretch of the Thaba-ea-Nape mountain range is covered with a number of stone walled sites.
- The Marang Substation: Kopjes to the north and south of Marang Substation are associated with stone walled settlements. Upgrading of the Marang Substation may have an affect on these settlements.

6.2.3 Possible impact on graves and graveyards

It seems as if a graveyard along the Makgope/Malepe mountains to the southern most point (1st Eastern Matimba B-Marang Option) may be affected by the new power line.

6.3 Mitigating the impact on the heritage resources

It seems as if ruins, stone walled sites and a graveyard may be affected by the proposed new Matimba B-Marang power line and the Marang Substation.

6.3.1 Mitigating the ruins

The nature, extent and significance of the ruins which may be impacted on Geelhoutskloof 359JQ and Geluk 212KP are unknown. These remains usually do not have any outstanding significance as they date from the more recent past.

However, if these ruins are older than sixty years they qualify as heritage resources and are subsequently protected by Section 34 of the National Heritage Resources Act (No 25 of 1999).

It these ruins are older than sixty years are impacted by the development a permit to demolish these ruins have to be acquired from the North-West Provincial Heritage Resources Authority (NW PHRA). The permit would authorise the destruction of these remains.

6.3.2 Mitigating the stone walled sites

Three stretches of the proposed Matimba B-Marang power line corridor and the Marang Substation may have an impact on stone walled settlements. The following mitigating circumstances as well as opportunities for mitigation exist, namely (Table 2):

- Stone walled settlements and scattered norite hills exist along the <u>Western Matimba B-Marang option</u> which runs from Paardekraal to the Marang Substation. The norite hills and settlements along this stretch are not numerous. Neither do these settlements (and hills) cover large

surface areas. It is possible that the stone walled settlements (and kopjes) could be avoided if this stretch of the power lined is thoroughly planned.

- The 1st Eastern Matimba B-Marang option runs between Makgope/Malepe mountains and the southern most point. The eastern end of Makgope is covered with stone walled sites. It is possible to avoid these sites if the Matimba B-Marang power line is constructed to the east of Eskom's existing power line which runs through the Makgope-Malepe poort.
- The 2nd Eastern Matamba B-Marang option runs from the southern most turning point along the western edge of the Thaba-ea-Nape range of mountains to the Marang Substation. This stretch of the Thaba-ea-Nape range of mountains is covered with a large number of stone walled sites. One of Eskom's existing power lines already runs along this corridor. If the proposed new Matimba B-Marang power line runs parallel with the existing power line it may avoid the stone walled sites and clusters of sites along this stretch.
- The Marang Substation is associated with kopjes with stone walled settlements located to the north and to the south of the substation. Any upgrading of the Marang Substation may have an affect on these settlements. However, the upgrading of the Marang Substation may not require more space which may cause an impact on these sites.

STRETCHES/OPTIONS FOR THE MATIMBA B-MARANG POWER LINE	HERITAGE RESOURCES	MITIGATING CIRCUMSTANCES OR OPPORTUNITIES
Matimba B-Marang (Paardekraal-Marang)	Stone walled sites at isolated, scattered norite hills	Sites' (kopjes) numbers limited. Sites/kopjes can be avoided if this stretch is thoroughly planned/aligned
1st Eastern Matimba B-Marang option (between Makgope and Malepe mountains)	Stone walled sites on eastern end of Makgope mountain	Stone walled sites can be avoided if power line is constructed to the east of the existing power line.
2nd Eastern Matimba B-Marang option (along western edge of Thaba-ea-Nape mountains)	This stretch of the Thaba-ea-Nape mountains is covered with numerous stone walled sites.	An existing Eskom line already exists. If the new power line is fbuilt parallel with the existing power line it may avoid stone walled sites
Marang Substation	Kopjes to the north and south of substation.	Upgrading of substation does not necessarily require more space
Graveyard (between Makgope/Malepe and most southern turning point)		Graveyard may be avoided. Or preserve graveyard *in situ* or relocate graveyard

Table 2- Stretches/options for the proposed new Matimba B-Marang power line and the Marang Substation which may have a negative impact on stone walled sites in the Eskom Project Area.

6.3.3 Mitigating the graveyard

The graveyard in the stretch running from the Makgope/Malepe mountains is located some distance to the west of the 1st Eastern Matimba B-Marang option. It needs not to be affected if the new power line is constructed to the east of Eskom's existing power line. The graveyard can also be mitigated by following one of two strategies, namely:

- The graves can be kept *in situ* in the proposed new power line corridor. However, the graves have to be demarcated (with a fence) to prevent that any (accidental) damage is inflicted on the graves during the construction of the power line. Access to the graveyard must be possible after the power line has been constructed.
- The graves can 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.

6.4 Preferred route option

The most significant impact on stone walled sites and complexes of stone walled sites (cultural landscapes) may occur along the 2nd Eastern Matimba B-Marang option considering the large number of sites and complexes of sites which occur along this option. The Western Matimba B-Marang option therefore may be a preferred option if the 2nd Eastern Matimba B-Marang option's new trajectory along Eskom's existing power line may not guarantee the unaffected continued existence of stone walled sites and cultural landscapes along this option.

7 CONCLUSION AND RECOMMENDATIONS

Eskom is expanding transmission and generation infrastructure to ensure a sufficient generation capacity to sustain the country's economic growth. Consequently, the proposed Matimba Transmission Integration Project requires the construction of power lines as well as the construction and upgrading of substations. This project involves the construction of a 400kV power line from the Matimba B Power Station near Lephalale in the Limpopo Province to the Marang Substation near Rustenburg in the North-West Province.

The Matimba B-Marang power line may impact on any of the types and ranges of heritage resources that are outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1). Consequently, a Phase I Heritage Impact Assessment (HIA) study for the proposed 400kV Matimba B-Marang power line corridor as well as for the Spitskop and Marang Substations was conducted.

The Phase I HIA study had the following aims: to establish whether any types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act do occur in or near the Eskom Project Area and, if so, to determine the nature, the extent and the significance of these remains; to determine whether such remains will be affected by the proposed new development; and to evaluate what appropriate actions can be taken to reduce the impact of the development on such remains.

The Matimba B-Marang power line can be divided into two main stretches, namely a northern and a southern stretch. The southern stretch can be divided into two options namely a Western Matimba B-Marang option and an Eastern Matimba B-Marang option. The upgrading of the Spitskop and the Marang Substations are part of the Matimba Integration Project.

The main types and ranges of heritage resources that were identified in the Eskom Project Area consist of:

- Ruins and graves that were identified from the Surveyor General's 1: 50 000 topographical maps and which occur in or near the power line corridor.
- Stone walled settlements or clusters of these sites which occur along the Western Matimba B and the Eastern Matimba B-Marang Options and near the Marang Substation.

The majority of these heritage resources and graves were mapped. The levels of significance of these remains have been indicated as well as the magnitude of any impact on these heritage resources and graves (Figure 3 & Table 1).

It is possible that ruins on Geelhoutskloof 359JQ and Geluk 212KP may be impacted by the new power line. The nature, extent and significance of these 'ruins' (which have been identified from the 1: 50 000 topographical maps) is unknown. These remains usually do not have any outstanding significance as they date from the recent past.

However, if these ruins are older than sixty years they qualify as heritage resources and are subsequently protected by Section 34 of the National Heritage Resources Act (No 25 of 1999). If they are to be impacted by the development a permit to demolish these ruins have to be acquired from the North-West Provincial Heritage Resources Authority (NW PHRA). The permit would authorise the destruction of these remains.

Stone walled sites are abundant in and near the Eskom Project Area. These sites date from the Late Iron Age. These sites and clusters of sites (cultural landscapes) hold high significance and are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999).

The following stretches of the proposed Matimba B-Marang power line together with the Marang Substation may have a negative impact on single stone walled sites or clusters of stone walled sites, namely (Table 1):

- The Western Matimba B-Marang option: The stretch runs from Paardekraal eastwards and then south-eastwards to the Marang Substation. Stone walled settlements occur at most of the isolated, scattered norite hills close to the Marang Substation.
- The 1st Eastern Matimba B-Marang option: The stretch runs between Makgope/Malepe mountains and the southernmost point. The eastern end of Makgope mountain is covered with stone walled sites which may be impacted by the power line.
- The 2nd Eastern Matimba B-Marang option: This stretch runs from the southern most turning point along the western edge of the Thaba-ea-Nape range of mountains to the Marang Substation. This stretch of the Thaba-ea-Nape mountain range is covered with a number of stone walled sites.
- The Marang Substation: Kopjes to the north and south of Marang Substation are associated with stone walled settlements. Upgrading of the Marang Substation may have an affect on these settlements.

The following mitigating circumstances as well as opportunities for mitigation of the stone walled sites or the complexes of stone walled sites exist, namely (Table 2):

- Stone walled settlements (and norite kopjes) exist along the Western Matimba B-Marang option which runs from Paardekraal to the Marang Substation. The norite hills and settlements along this stretch are not numerous. Neither do these settlements (and kopjes) cover large surface areas. It is possible that the stone walled settlements (and kopjes) could be avoided if this stretch of the power lined is thoroughly planned.
- The 1st Eastern Matimba B-Marang option runs between Makgope/Malepe mountains and the southern most point of the power

line. The eastern end of Makgope is covered with stone walled sites. It is possible to avoid these sites if the Matimba B-Marang power line is constructed to the east of Eskom's existing power line which runs through the Makgope-Malepe poort.

- The 2nd Eastern Matamba B-Marang option runs from the southern most turning point along the western edge of the Thaba-ea-Nape range of mountains to the Marang Substation. This stretch of the Thaba-ea-Nape range of mountains is covered with a large number of stone walled sites. One of Eskom's existing power lines already runs along this corridor. If the proposed new Matimba B-Marang power line runs parallel with the existing power line it may avoid the stone walled sites and clusters of sites along this stretch.
- The Marang Substation is associated with kopjes with stone walled settlements located to the north and to the south of the substation. Any upgrading of the Marang Substation may have an affect on these settlements. However, the upgrading of the Marang Substation may not require more space which subsequently will not cause an impact on these sites.

Graves and graveyards hold high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

It seems as if a graveyard along the Makgope/Malepe mountains to the southern most turning point (1st Eastern Matimba B-Marang Option) may be affected by the new power line.

This graveyard, however, is located some distance to the west of the 1st Eastern Matimba B-Marang option. It needs not to be affected if the new power line is constructed to the east of Eskom's existing power line. The graveyard can also be mitigated by following one of two strategies, namely:

- The graves can be kept *in situ* in the proposed new power line corridor. However, the graves have to be demarcated (with a fence) to prevent that any (accidental) damage is inflicted on the graves during the construction of the power line. Access to the graveyard must be possible after the power line has been constructed.
- The graves can 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.

Summary:

The most significant impact on stone walled sites and complexes of stone walled sites (cultural landscapes) may occur along the 2nd Eastern Matimba B-Marang option considering the large number of sites and complexes of sites which occur along this option. The Western Matimba B-Marang option therefore may be a preferred option if the 2nd Eastern Matimba B-Marang option's new trajectory along Eskom's existing power line may not guarantee the unaffected continued existence of stone walled sites and cultural landscapes along this option.

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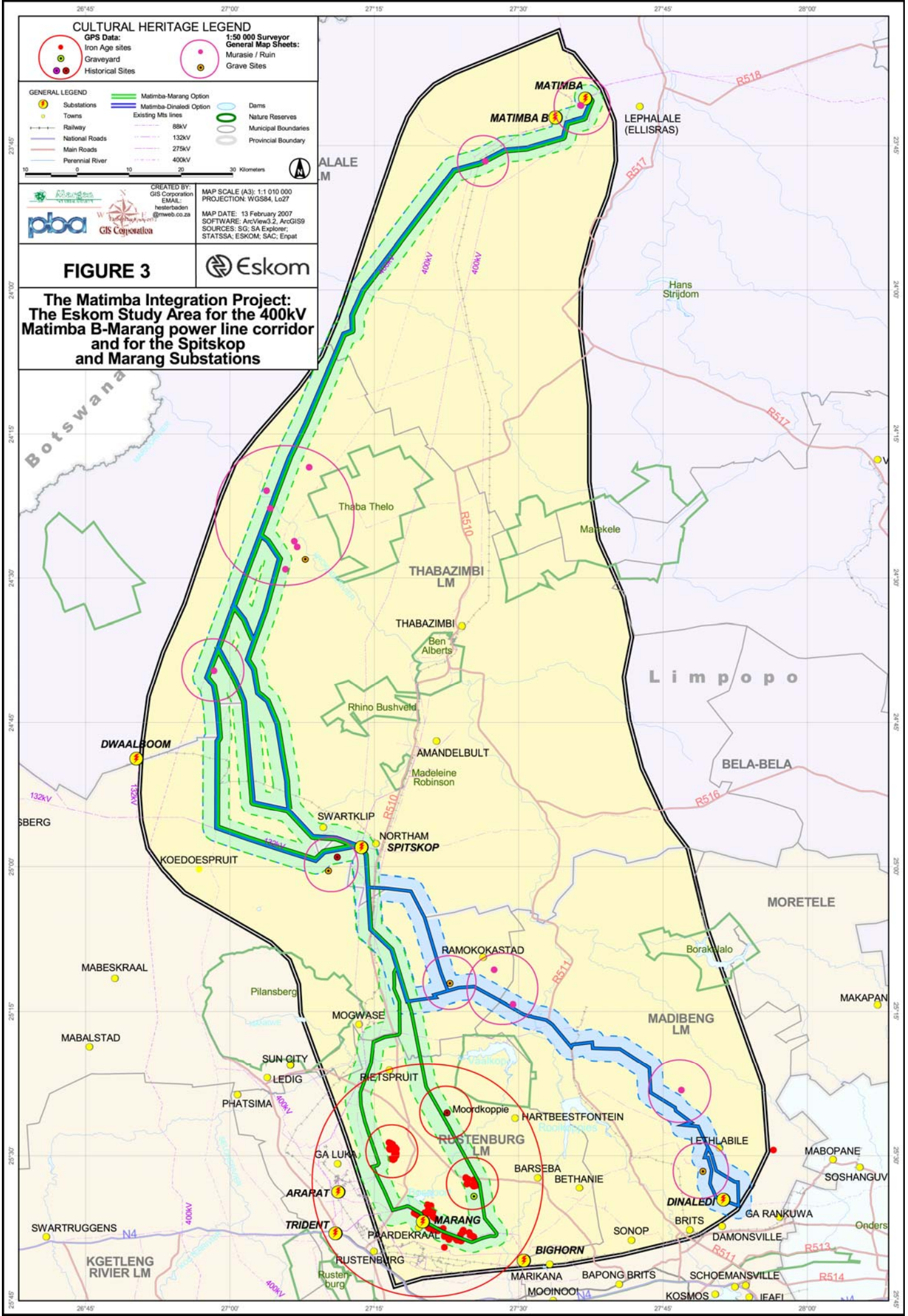
CULTURAL HERITAGE LEGEND
GPS Data:
Iron Age sites
Graveyard
Historical Sites
1:50 000 Surveyor General Map Sheets:
Murasie / Ruin
Grave Sites
GENERAL LEGEND
Substations
Towns
Railway
National Roads
Main Roads
Perennial River
Matimba-Marang Option
Matimba-Dinaledi Option
Existing Mts lines
88kV
132kV
275kV
400kV
Dams
Nature Reserves
Municipal Boundaries
Provincial Boundary
Kilometers
CREATED BY: GIS Corporation
EMAIL: hesterbaden@mweb.co.za
MAP SCALE (A3): 1:1 010 000
PROJECTION: WGS84, Lo27
MAP DATE: 13 February 2007
SOFTWARE: ArcView3.2, ArcGIS9
SOURCES: SG; SA Explorer; STATSSA; ESKOM; SAC; Enpat
GIS Corporation
Eskom
FIGURE 3
The Matimba Integration Project: The Eskom Study Area for the 400kV Matimba B-Marang power line corridor and for the Spitskop and Marang Substations
MATIMBA
MATIMBA B
LEPHALALE (ELLISRAS)
Hans Strijdom
Botswana
Thaba Thelo
Marekele
THABAZIMBI LM
THABAZIMBI
Ben Alberts
Limpopo
Rhino Bushveld
DWAALBOOM
AMANDELBULT
Madeleine Robinson
BELA-BELA
SWARTKLIP
NORTHAM
SPITSKOP
KOEDOESPRUIT
MORETELE
RAMOKOKASTAD
Borakalalo
MABESKRAAL
Pilansberg
MOGWASE
MADIBENG LM
MAKAPAN
MABALSTAD
SUN CITY
LEDIG
RIETSPRUIT
PHATSIMA
Moordkoppie
HARTBEESTFONTEIN
RUSTENBURG LM
LETHLABILE
MABOPANE
GA LUKA
BARSEBA
BETHANIE
SOSHANGUV
ARARAT
DINALEDI
GA RANKUWA
SWARTRUGGENS
TRIDENT
MARANG
BRITS
PAARDEKRAAL
SONOP
DAMONSVILLE
Onders
BIGHORN
KGETLENG RIVIER LM
RUSTENBURG
MARIKANA
BAPONG BRITS
SCHOEMANSVILLE
MOOINOOI
KOSMOS
IFAFI
R518
R517
R510
R511
R516
R513
R514
N4
400kV
132kV