



**PHASE 1 HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED CONSTRUCTION OF BAFOKENG-ARARAT 88KV POWERLINE. THE PROJECT FALLS UNDER RUSTENBURG LOCAL MUNICIPALITY IN THE NORTH WEST PROVINCE.**



**Date: AUGUST 2021**

**Archaeology and Heritage Services**

**PREPARED FOR**

**Humba Environmental Consultancy**

**212 South Street**

**B415 Riverside Place**

**Centurion**

**Pretoria**

**Contact person: Tinashe Maramba**

**Tel: 072 309 0502**

**Email: [tinashe@humba.org](mailto:tinashe@humba.org)**

**PREPARED BY**

**Vungandze Project (Pty) Ltd**

**35A Grace Avenue**

**Parkhill Gardens**

**Germiston**

**1401**

**Contact person: Makhosazana Mngomezulu**

**Tel: 083 256 1292**

**Email: [fvungandze@gmail.com](mailto:fvungandze@gmail.com)**

**Affiliation: ASAPA & CRM**

## **COPYRIGHT**

The information produced in this report is for the purposes of the proposed construction of Bafokeng-Ararat 88kv Powerline. Therefore, no person is allowed to copy or reproduce this report without written consent of the author. This is with exception to the client Humba Environmental Consultancy and Eskom who will be reviewing and making comments to the report.

## **DECLARATION OF INDEPENDENCE**

This report has been compiled by Makhosazana Mngomezulu, principal archaeologist and heritage consultant. The views expressed in this report are independent of the author and no other interest was displayed during the decision-making process of the proposed construction of Bafokeng-Ararat 88kv Powerline.

SIGNATURE:

## TERMINOLOGY

<b>BP</b>	Before Present
<b>EAP</b>	Environmental Assessment Practitioner
<b>EIA</b>	Environmental Impact Assessment
<b>EIA</b>	Early Iron Age
<b>ESA</b>	Early Stone Age
<b>HIA</b>	Heritage Impact Assessment
<b>Ibid</b>	<i>Ibidem</i> , Latin word meaning same as the previous source
<b>LIA</b>	Late Iron Age
<b>LSA</b>	Late Stone Age
<b>MIA</b>	Middle Iron Age
<b>MSA</b>	Middle Stone Age
<b>NHRA</b>	National Heritage Resources Act
<b>SAHRA</b>	South African National Resources Agency
<b>SAHRIS</b>	South African Heritage Resources Information System
<b>SAPS</b>	South African Police Services
<b>ya</b>	years ago

## DEFINITIONS

A heritage resource means any place or object of cultural significance.

*In situ*: In the original place. No disturbance.

Chance finds: Archaeological and historical artefacts, features, structures and formal or informal burial of human remains that are found accidentally in context not previously identified during the site survey. Such findings are usually exposed by activities such as excavation.

ESA dates between 2 million ya to 2 00 000 BP. Industries associated with this time period includes Oldowan, Acheulean and Fauresmith. ESA stone tools include hammer stones, flakes, cores, handaxes and cleavers (Pelser 2009).

MSA dates between 2 00 000 and 25 000 to 20 000 BP, this varies with location. Industries associated with this time period includes the Howieson's Poort. The stone tools which characterise this period include scrapers, blades, points and flake.

LSA which dates between 25 000 and 20 000 to 2 000 BP. Stone tools of this period are characterised by their small size; this includes backed knives and borers (Pelser 2009).

Iron Age (IA) refers to a period of time where agropastoral (mixed farming) way of life began and grew as opposed to Stone Age hunter-gathering.

EIA dates to AD 200 – 900 (Huffman 2007).

MIA dates to AD 900 – 1300 (ibid).

LIA dates to AD 1300 – 1840 (ibid).

## **EXECUTIVE SUMMARY**

Eskom's Bafokeng 7 substation currently has two (2) transformers that supply electricity to Impala platinum mine. Eskom proposes to add a 3rd transformer at Eskom Bafokeng 7 substation for Impala Platinum mine by reducing electricity load at Millennium Substation which feeds Millennium mine and increasing/taking it to Bafokeng 7 substation which will supply more electricity load for Impala Platinum mine. Vungandze Projects has been appointed by Humba Environmental Consultancy, the environmental consultants of the project to undertake a Phase 1 Heritage Impact Assessment in terms of the heritage significance on the proposed site.

During the physical survey conducted on 26 July 2021, no heritage resources were found on the proposed site and routes. The proposed site and routes are all viable for the proposed project in terms of heritage; however, proposed mitigation measures must be adhered to.

The report will be uploaded on SAHRIS for comments and for a decision as per the National Heritage Resources Act (Act No 25 of 1999). The proposed project can proceed from a heritage perspective pending a decision from SAHRA.

## Project Structure

<b>Introduction</b>	<ul style="list-style-type: none"><li>• Report background</li><li>• Methodology</li><li>• Assumptions &amp; limitations</li></ul>
<b>Project locality</b>	<ul style="list-style-type: none"><li>• Location (include mapping)</li><li>• Heritage Background</li></ul>
<b>Findings</b>	<ul style="list-style-type: none"><li>• Types of findings</li><li>• Mapping of findings</li><li>• Assessment of findings</li><li>• Level of significance</li><li>• Possible impacts</li></ul>
<b>Recommendations &amp; conclusion</b>	<ul style="list-style-type: none"><li>• Mitigation measures</li></ul>
<b>Additional Information</b>	<ul style="list-style-type: none"><li>• Applicable Legislation</li></ul>

## Contents

1. Introduction .....	9
2. Terms of Reference (ToR) .....	10
3. Methodology.....	10
3.1 Assumptions.....	14
3.2 Limitations.....	14
4. Locality Area.....	14
5. Images of the study area.....	20
6. Historical Background of the study area.....	24
6.1 Stone Age Archaeology .....	24
6.2 Iron Age Archaeology.....	24
7. Findings .....	27
8. Impact Assessment .....	27
8.1 Evaluation of impact WITH and WITHOUT mitigation measures .....	27
8.2 Environmental Management Programme report.....	29
8.3 Site Significance .....	30
9. Recommendations and Chance finding .....	30
10. Conclusion.....	31
11. References .....	31
12. Legislation .....	34
12.1 Section 3 of the NHRA 25 of 1999 .....	34
12.2 Section 36 of NHRA 25 of 1999.....	36
12.3 Section 38 of NHRA 25 of 1999.....	38

## LIST OF FIGURES

Figure 1: Locality map of the study area both Ararat (South) and Bafokeng 7 (North) substation. ....	16
Figure 2: Aerial view of proposed Ararat substation. ....	17
Figure 3: Aerial view of preferred Ararat substation. ....	18
Figure 4: Aerial view of Bafokeng 7 substation. ....	19
Figure 5: Ararat Substation. ....	20
Figure 6: Bafokeng 7 Substation. ....	20
Figure 7: Existing Eskom powerline. ....	21

Figure 8: Existing Eskom powerline. ....	21
Figure 9: Existing gravel road.....	22
Figure 10: Type of vegetation on site, thick vegetation. ....	22
Figure 11: Type of vegetation on site, short grass.....	23
Figure 12: Existing houses near Bafokeng 7 Substation. ....	23

**LIST OF TABLES**

<i>Table 1: Site significance rating according to SAHRA. ....</i>	11
Table 2: The significance weighing for each potential impact are as follows: .....	13
Table 3: Evaluation of the impacts of the project on the heritage resource WITHOUT mitigation measures.....	28
Table 4: EMPr for the proposed Bafokeng-Ararat 88kv Powerline during the construction and decommissioning phase.....	29

## 1. INTRODUCTION

Eskom's Bafokeng 7 substation currently has two (2) transformers that supply electricity to Impala platinum mine. Eskom proposes to add a 3rd transformer at Eskom Bafokeng 7 substation for Impala Platinum mine by reducing electricity load at Millennium Substation which feeds Millennium mine and increasing/taking it to Bafokeng 7 substation which will supply more electricity load for Impala Platinum mine. The scope of work for this project entails then,

1. the installation of a new 40MVA 88/33kV transformer at Eskom Bafokeng 7 substation; and
2. the splitting of the 2xSycamore 88kV lines that are entering the Bafokeng 7 88/33kV substation and the 2xSycamore 88kV lines that are also leaving the Eskom Ararat Main Transmission Substation (MTS), so as to increase a load for Impala Platinum mine while maintaining a firm supply at Eskom's Millennium 88/33/6.6kV substation by shifting load from the Millennium point of supply to Eskom's Bafokeng 7 substation.

In addition, Eskom Bafokeng 7 substation supplies the local townships of Mogono and Ga-Luka. The Ararat MTS supplies local substations like Minpro, SA Chrome, Millennium, Impala Platinum, Phokeng, Wildeplats and Bafokeng 7.

According to the National Heritage Resources Act (Act 25 of 1999), any person who intends to undertake a development must conduct a Heritage Impact Assessment to determine if there are any heritage resources along and within the proposed project and if any resources are found, mitigation measures and recommendations for the protection of such resources need to be adhered to. Below is the heritage act with reference to the proposed project and why a heritage impact assessment should be conducted:

Based on Section 38 under Heritage Resources Management of the National Heritage Act 25 of 1999 the heritage resources in South Africa should be managed in the following:

“(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

The aim of this report is to outline anticipated impacts of the proposed construction of Bafokeng-Ararat 88kv Powerline on the proposed site and routes if whether or not they are suitable for such a development in terms of heritage; and provide recommendations/mitigation measures as a way forward.

## **2. TERMS OF REFERENCE (TOR)**

The approach used for this report was:

- Undertake a Phase 1 HIA in accordance with the NHRA.
- Identify and map all heritage resources in the proposed area and its surroundings, as defined in Section 3 of the NHRA, including archaeological sites on or close (within a 100m boundary of the site) to the proposed area.
- Assess the significance of any identified resources in terms of the heritage assessment criteria as set out in the South African Heritage Resources Agency (SAHRA) regulations.
- Provide mitigation measures to safeguard heritage resources identified on study area; and
- Comply with specific requirements and guidelines of North West Provincial Heritage Resources Authority (NWPHERA) and SAHRA.
- Upload final report on SAHRIS for comments and decision making by SAHRA.

## **3. METHODOLOGY**

The physical survey was conducted and completed on 26 July 2021. This report is prepared according to the NHRA. Background research of the study area was conducted using literature such as books, journals, previously conducted HIA's on the study area and the internet before and after the site visit. The purpose of the research prior to the physical survey was to acquire information as to what to expect in the study area, the site visit was completed to identify heritage resources that may be impacted due to a construction of the proposed Bafokeng-Ararat 88kv Powerline.

A heritage resource means any place or object of cultural significance [NHRA1999 (Act No. 25 of 1999)]. The NHRA was used as a source of reference to identify what is known as a heritage resource (see Appendix A Section 3 for list of heritage resources).

The survey was conducted on foot in order to record and locate any heritage resources within the study areas. The table from SAHRA Regulations will be used to grade the significance and evaluate the level of impact on the heritage resources identified.

Table 1: Site significance rating according to SAHRA.

<b>FIELD RATING</b>	<b>GRADE</b>	<b>SIGNIFICANCE</b>	<b>RECOMMENDED MITIGATION</b>
National Significance (NS)	Grade 1	High Significance	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	High Significance	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation: Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	-	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium Significance	Recording before destruction
Generally Protected C (GP.A)	-	Low Significance	Destruction

The determination of the effects of environmental impact on an environmental parameter is determined through a systematic analysis of the various components of the impact. This is undertaken using information that is available from the Environmental Assessment Practitioner (EAP) through the process of the Environmental Impact Assessment (EIA). The impact evaluation of predicted impacts was undertaken through an assessment of the significance of the impacts. This is in line with specialist requirements as required by the client. For example, the request that:

The impact methodology (should) concentrate on addressing key issues. The methodology employed in the report thus allows for the evaluation of the efficiency of the process itself.

***The following Assessment Criteria is used for Impact Assessment***

Impacts can be defined as any change in the physical-chemical, biological, cultural and or socio-economic environmental system that can be attributed to humans. The significance of the aspects/impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

***The significance of the impacts will be determined through a synthesis of the criteria below:***

**Probability:** describes the likelihood of the impact actually occurring

- **Improbable:** the possibility of the impact occurring is very low, due to the circumstances, design or experience.
- **Probable:** there is a probability that the impact will occur to the extent that provision must be made therefore.
- **Highly probable:** it is most likely that the impact will occur at some stage of the development.
- **Definite:** the impact will take place regardless of any prevention plans and there can only be relied on mitigation measures or contingency plans to contain the effect.

**Duration:** the lifetime of the impact

- **Short Term:** the impact will either disappear with mitigation or will be mitigated through natural processes in a time span shorter than any of the phases.
- **Medium Term:** the impact will last up to the end of the phases, where after it will be negated.
- **Long Term:** the impact will last for the entire operational phase of the project but will be mitigated by direct human action or by natural processes thereafter.
- **Permanent:** the impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.

**Scale:** the physical and spatial size of the impact

- **Local:** the impacted area extends only as far as the activity, e.g. footprint
- **Site:** the impact could affect the whole or measurable portion of the abovementioned property.
- **Regional:** the impact could affect the area including the neighbouring residential areas.

**Magnitude/Severity: Does the impact destroy the environment, or alter its function**

- **Low:** the impact alters the affected environment in such a way that natural processes are not

affected.

- **Medium:** the affected environment is altered, but functions and processes continue in a modified way.
- **High:** function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.

**Significance:** This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

- **Negligible:** the impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.
- **Low:** the impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.
- **Moderate:** the impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.
- **High:** The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

The significance is calculated by combining the criteria in the following formula:

Sum (Duration, Scale, Magnitude) x Probability (*Table -2*)

S = Significance weighting; Sc = Scale; D = Duration; M = Magnitude; P = Probability

*Table 2: The significance weighing for each potential impact are as follows:*

Aspect	Description	Weight
<b>Probability</b>	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
<b>Duration</b>	Short term	1
	Medium term	3

	Long term	4
	Permanent	5
<b>Scale</b>	Local	1
	Site	2
	Regional	3
<b>Magnitude/Severity</b>	Low	2
	Medium	6
	High	8
<b>Significance</b>	Sum (Duration, Scale, Magnitude) x Probability	
	Negligible	≤20
	Low	>20≤40
	Moderate	>40≤60
	High	>60

### 3.1 Assumptions

---

It was assumed based on the aerial view from Google Earth and literature review that the study area might not yield heritage resources such as burial grounds and graves because it seemed disturbed.

### 3.2 Limitations

---

No limitations were encountered on site during the survey.

## 4. LOCALITY AREA

The proposed project will be in the Rustenburg Local Municipality (RLM) under the magisterial municipal district of Bojanala Platinum (BPDM). Ararat MTS is approximately 4km due north-east of Phokeng town, capital of the Royal Bafokeng Nation. Ararat MTS is approximately 7.5km due south of Bafokeng 7 substation on GPS Co-ordinates: 25°33' 46.28"S 27°11'13.43"E, these were

taken at midpoint of the substation (see figure 1-3 & 5). Bafokeng 7 substation is located between the Ga-Luka and Magono townships, Rustenburg. Bafokeng 7 substation is situated north of Ararat substation on GPS Co-ordinates: 25°29' 46.93"S 27°11' 19.17"E, these were taken southwest of the substation (see figure 1,4 & 6). The site is an open veld and has been previously disturbed with existing pylons, gravel road and the two substations (see figure 7-12).

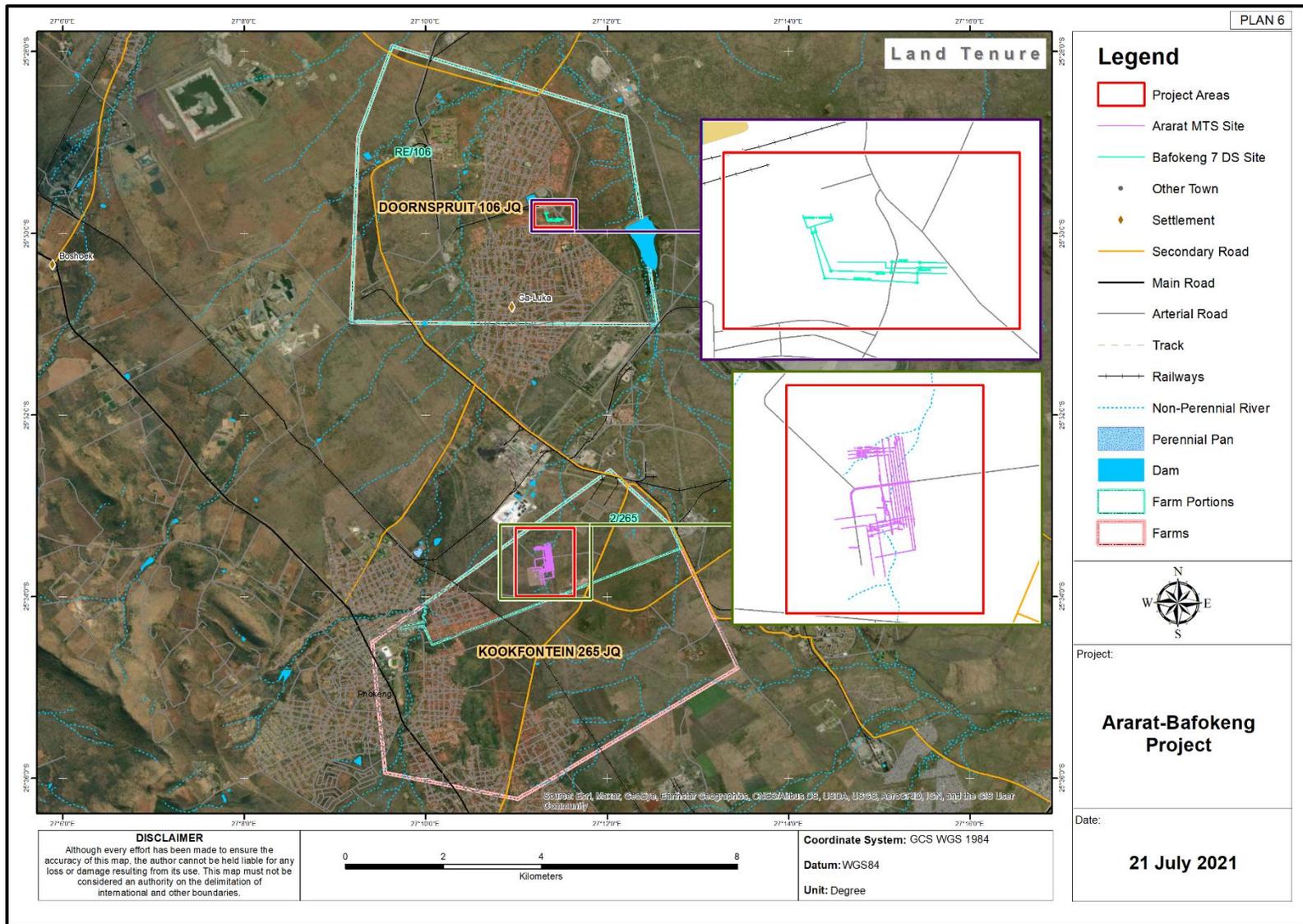


Figure 1: Locality map of the study area both Ararat (South) and Bafokeng 7 (North) substation.

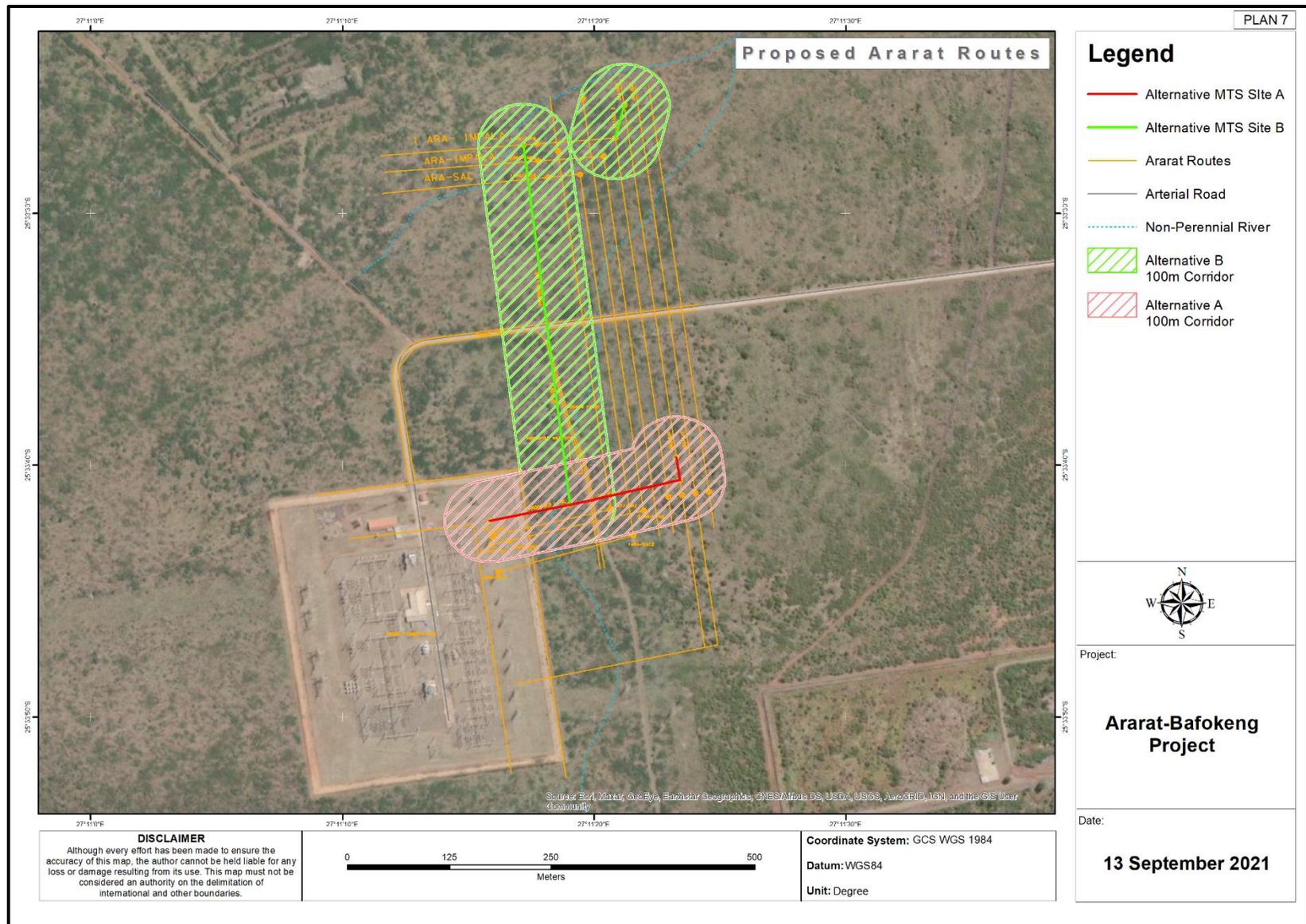


Figure 2: Aerial view of proposed Ararat substation.

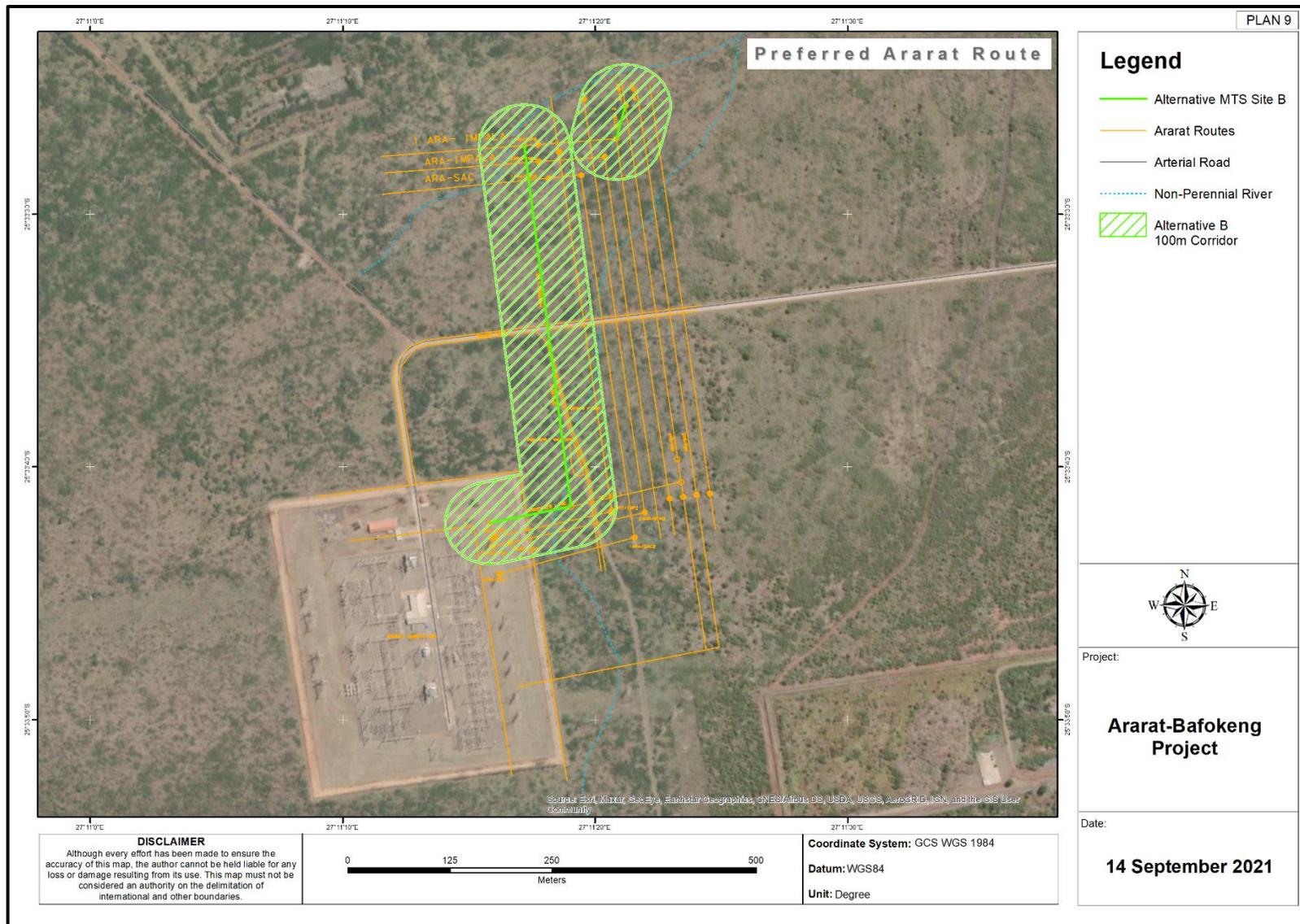


Figure 3: Aerial view of preferred Ararat substation.

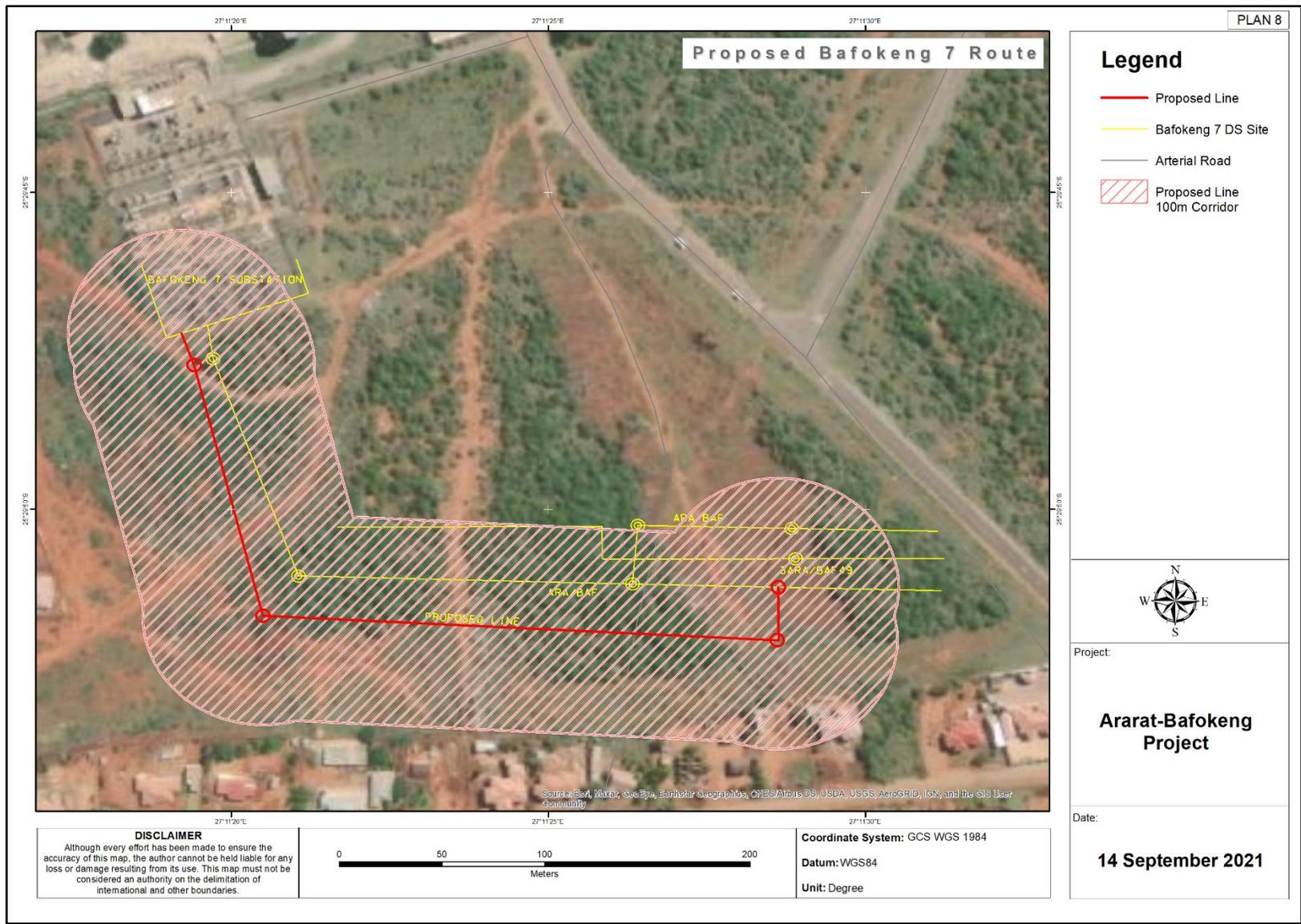


Figure 4: Aerial view of Bafokeng 7 substation.

## 5. IMAGES OF THE STUDY AREA



Figure 5: Ararat Substation.



Figure 6: Bafokeng 7 Substation.



*Figure 7: Existing Eskom powerline.*



*Figure 8: Existing Eskom powerline.*



Figure 9: Existing gravel road.



Figure 10: Type of vegetation on site, thick vegetation.



*Figure 11: Type of vegetation on site, short grass.*



*Figure 12: Existing houses near Bafokeng 7 Substation.*

## 6. HISTORICAL BACKGROUND OF THE STUDY AREA

History of human activity in South Africa, as in all parts of the world, dates to millions of years. It is important to elaborate as far back in time to enable the reader to understand what is meant by archaeological material and why is it declared a heritage resource. Archaeological materials are divided into two periods, the Stone Age, and the Iron Age. Late Iron Age marks the transition between prehistory and history, a period of colonial era until recent.

### 6.1 Stone Age Archaeology

---

The Stone Age is a period that dates between 2 million years ago (ya) to 2000 ya. Due to the vast character found within stone tools of this period, it was then divided into three phases: Early Stone Age (ESA), Middle Stone Age (MSA) and the Late Stone Age (LSA). ESA dates between 2 million ya and 200 000 Before Present (BP). Industries associated with this time includes Oldowan, Acheulean and Fauresmith. ESA stone tools include hammer stones, flakes, cores, hand axes and cleavers (Pelser 2009). The more refined stone tools appeared during the MSA. MSA dates between 200 000 and 25 000 to 20 000 BP, this varies with location. Industries associated with this period includes the Howieson's Poort. The stone tools which characterise this period include scrapers, blades, points, and flake. Lastly is the LSA which dates between 25 000 and 20 000 to 2 000 BP. Stone tools of this period are characterised by their small size; this includes backed knives and borers (Pelser 2009).

No Stone Age site or material was noted on the proposed site or in close proximity.

### 6.2 Iron Age Archaeology

---

According to Huffman (2007) Iron Age marks the early evidence of farming community in Southern Africa. Animal husbandry, crop farming, pottery and metal working were introduced which in due time liberated hunter gatherers to change their way of life which is less mobile (Carruthers 1990). Due to vast technological discrepancies and settlement pattern within this period, it was divided into three. The Early Iron Age (EIA) dates to AD 200 – 900, Middle Iron Age (MIA) dates to AD 900 – 1300, and the Late Iron Age (LIA) dates to AD 1300 – 1840 (Huffman 2007).

Rustenburg, known as 'the richest tribe in Africa' because of their mineral wealth, the Fokeng have been based at Phokeng north of Rustenburg since the end of the 17th century. They now speak Tswana, but archaeological evidence indicates an earlier Nguni origin in KwaZulu-Natal.

According to oral traditions, their legendary place of origin is the hill Ntsuanatsatsi just south of the Vaal River. There in the Free State, a diagnostic type of stonewalling and pottery characterised early Fokeng settlements. Known as Type N walling and Ntsuanatsatsi pottery, the distribution of this complex marks the movement of people in the 'Fokeng cluster' north across the Vaal River into the Gauteng and North West provinces. This movement probably dates to the mid-16th century, predating the lifespan of meaningful oral traditions about specific leaders.

Once in the greater Rustenburg area, Fokeng met various Sotho-Tswana people. Through intermarriage and other forms of interaction, the Fokeng were 'Sotho-ised'. As part of this process, their type of walling changed somewhat to what is now called Klipriviersburg and the pottery to Uitkomst. Besides Fokeng, groups today with this second complex of stonewalling and pottery include Tlokwa and BaPo. In the early 19th century, the BaPo had their capital at the base of Wolhuterskop southeast of Rustenburg. Their historic leader, Mogale, gave his name to the Magaliesberg (Carruthers 2000). Together these groups form the 'Fokeng cluster'.

As a result of the interaction, Sotho-Tswana speakers adopted stonewalling. In the Rustenburg area, they built the Molokwane type, named after a well-known settlement (also called Selonskraal) west of Rustenburg. In the late 19th century, Molokwane was the capital of the Modimosana Mmatau BaKwena, and housed up to 20 000 people. Archaeologists have excavated a small part of Molokwane and most of a similar settlement near the Olifantspoort Dam (Pistorius 1992). One of the walling differences has to do with the location of small stock kraals. In the two types of Fokeng settlements, sheep/goat kraals were attached to the outer wall, and thus at the back of the residential area. In contrast, sheep and goats were penned at the front of the residential zone in Sotho-Tswana settlements. Further, stone arcs in the outer wall marked the back of a married woman's household at Molokwane and Olifantspoort. This 'bi-lobial' arrangement characterises all Sotho-Tswana settlement patterns, and this feature was adopted by Fokeng as they became more Sotho-like.

The large size of Molokwane and other contemporaneous settlements was a reaction to the troubled times known as the difaqane (Sotho), or mfecane (Nguni) that started in the late 18th century. At this time, Sotho-Tswana people aggregated around their leaders for mutual defence.

Since then, urban clusters (rather than dispersed homesteads) have been a characteristic of Sotho-Tswana life.

Another kind of stonewalled settlement also dates to the Late Iron Age in the Rustenburg region. Located on hill slopes, stone-lined cattle tracks and house terraces follow a front/back axis that identifies the occupants as Southern Nguni. These people were probably the ancestors of present-day Tlhako, neighbours of the Fokeng.

When Mzilikazi moved from KwaZulu-Natal to here in about 1826, he incorporated many local people, including Fokeng. This combined nation created another stonewalled type, called Doornspruit (after the farm where it was first recognised). From the air, these recent settlements resemble a beaded necklace: long scalloped walls enclosed houses, kitchens and small stock, while cattle stayed inside wooden byres inside a large open space. This pattern appears to be a stonewalled version of a Zulu military kraal.

A favourable environment is one of the reasons why African farmers moved into the Rustenburg area. The underlying igneous rocks produce a rich, dark soil ideal for sorghum cultivation.

Although the area suffers occasional dry spells, as elsewhere, the numerous hills ensure that it is generally well watered, and it suffers few frosts. In addition, the availability of iron and copper ores was another attraction. The Tlokwa was one group to exploit these mineral resources.

Tlokwa mined copper ores from a shallow deposit not far from their capital town of Marothodi west of the Pilanesberg (Boeyens & Hall 2009). Archaeologists have uncovered numerous iron and copper smelters there in the 'no man's land' in between the stonewalled homesteads. Metal workers, on the other hand, worked secondary crucible furnaces for copper in small enclosures attached to the outer wall of the residential zone. This location is probably part of a complex of ideas that associate women with copper and men with iron. Research here has helped to clarify copper production at farming settlements elsewhere in southern Africa that lack stonewalling.

Research here has also helped to bridge the gap between history and archaeology. Oral traditions, early historic records and archaeology all point to a complex mix of Sotho-Tswana (Kwena) as well as Southern (Tlhako) and Northern Nguni people (Fokeng, BaPo and Tlokwa) before Europeans entered the area. Historical archaeologists are now actively researching the complexity of this ethnic mix.

In the Magaliesberg area, evidence of smelting and metal working comes mainly from three sites; Broederstroom in Pretoria, Uitkomst in Krugersdorp and; Olifantspoort in Rustenburg. The

area of Magaliesberg extends from the west of the Rustenburg to the east of Pretoria in the Transvaal. This area is rich in two main resources that are needed in metal working; ore and wood. Hills and Ridges such as the Timeball Hills and Daspoort Ridges consisted of ironstone and (was) very densely wooded, which meant enough wood supply required for charcoal (Friede 1977). The remains found in the Olifantspoort settlement dated from MIA (1000AD) to LIA (1800AD). Such remains include a smelting furnace and some slag-like material. None of the Iron age material were found of the proposed site.

## **7. FINDINGS**

During the physical survey, no heritage resources were found on the proposed site. The site has been previously disturbed with existing gravel roads, pylons and the two substations. None of the structures found on site was of heritage significance.

## **8. IMPACT ASSESSMENT**

### **8.1 Evaluation of impact WITH and WITHOUT mitigation measures**

---

The proposed Bafokeng-Ararat 88kv Powerline will impact the proposed site during the construction phase due to disturbance of the ground, however nothing from a heritage perspective, unless any heritage resources are discovered. Should any heritage resource be discovered that were not initially noted during the survey, the proposed recommendations should be adhered to. This section evaluates the extent of the impact WITH and WITHOUT mitigation measures in relation to the project under study.

Table 3: Evaluation of the impacts of the project on the heritage resource WITHOUT mitigation measures.

Impact	Project phase	Mitigation measures	Magnitude/Severity	Scale	Duration	Probability	Significance
None	Pre-construction	N/A	N/A	N/A	N/A	N/A	N/A
Discovery of human skeletal remains cannot be ruled out in the construction phase. This is due to ground disturbance as a result of excavations.	Construction	Without mitigation	8	2	5	2	45
		With mitigation	6	1	3	2	20
None	Operation	N/A	N/A	N/A	N/A	N/A	N/A
Should there be a possibility of decommissioning after 60 years from construction, the constructed structures will be protected under the NHRA as heritage resources, unless the legislation is amended otherwise.	Decommissioning	With mitigation	8	2	5	4	60
		Without mitigation	6	1	3	2	20

## 8.2 Environmental Management Programme report

The following table form the core of the EMPr for the construction, operational and decommissioning phases of the development. This table will be used as a checklist on site, especially during the construction phase, as such, their importance cannot be overstated. It will also be included as conditions in the Environmental Authorisation that will assist in ensuring Compliance to the EMPr. Adherence to the EMPr will be audited monthly and once immediately following completion of construction. This will be followed up with annual audits for a period of two years during the operational phase.

Table 4: EMPr for the proposed Bafokeng-Ararat 88kv Powerline during the construction and decommissioning phase.

ENVIRONMENTAL IMPACT	MITIGATION REQUIREMENTS	RESPONSIBLE PARTY	FREQUENCY
Impact on heritage resources	Sensitive areas must be monitored by Eskom Environmental Practitioner and if any archaeological or paleontological remains are uncovered work must cease immediately and the project archaeologist and SAHRA must be duly informed.  It is also advised that the Archaeology, Palaeontology and Meteorites Unit are alerted when site work begins.	Developer, Contractor, EO and ECO	Monthly, Continuous monitoring
	To decommission structures older than 60 years a permit is required from SAHRA.	Developer and heritage practitioner	Prior to decommissioning

### 8.3 Site Significance

---

The level of significance of the site and the cultural resources varies between social, historical, spiritual, scientific and aesthetic value.

**Social value** is when a place has become a focus of spiritual, political, national, or other cultural sentiments to a majority or minority group. This may be because the site is accessible and well known, rather than particularly well preserved or scientifically important (SAHRA Regulations). The proposed site has no social value.

**Historical value** refers to areas where historical events took place, and such events have high significance either locally, regionally, provincially, or nationally. The proposed site no historical value.

**Scientific value** refers to the importance of the study area for research purposes. The study areas seemed to have no scientific value.

**Aesthetic value** refers to the unique beauty of the site. The proposed site has no aesthetic value.

Based on the level of significance, the proposed site has low heritage significance.

## 9. RECOMMENDATIONS AND CHANGE FINDING

- During the construction phase, the contractor should keep within the proposed parameters of the site.
- The contractor should induct all employees on the importance of heritage sites and resources that they should not be impacted in any way. This is to ensure that even if any heritage resources are found during the construction phase or exposed due to construction activities, should by no means be impacted or destroyed.
- Should any other heritage resources be found on site during excavation; be it archaeological artefacts such as remains of stone tools and pottery; the contractor should cease construction immediately and contact the client. A heritage expert should be called to site to assess the significance of the archaeological material and the impacts of the proposed activities on such materials, and then provide mitigation measures.

- The possibility of uncovering unearthed human remains and shallow grave(s) should not be ruled out. Should potential human remains be found on site, the contractor should cease construction immediately and the South African Police Service and the client should be contacted. Should the remains be below 60 years old since time of death, it is considered a forensic case and further investigations should be conducted by the police and should the remains be above 60 years old since time of death, it becomes a South African Heritage Resources Agency case. This means an archaeologist should be called on site to remove the remains at the expense of the client.
- Should there be a possibility of decommissioning after 60 years from operation, the constructed structures will be protected under the NHRA as heritage resources, unless the legislation is amended otherwise. To decommission structures older than 60 years a permit is required from SAHRA.

## 10. CONCLUSION

In conclusion, no heritage resources were found during the site survey. The proposed site is of low significance from a heritage perspective. The proposed project may proceed provided mitigation measures and recommendations provided are adhered to and implemented. Any of the proposed routes are recommended as none of them have any impact to heritage resources.

The final report will be uploaded on SAHRIS for review and for a decision by SAHRA. Furthermore, subject to approval from SAHRA we recommend the approval to proceed with the proposed Bafokeng-Ararat 88kv Powerline in terms of the NHRA.

## 11. REFERENCES

Boeyens, J. & Hall, S. 2009. Tlokwa Oral Traditions and the Interface between History and Archaeology at Marothodi. *South African Historical Journal*. Volume 61: pg 457 - 481.

Carruthers, V. 2000. *The Magaliesberg*. Pretoria: Protea Book House.

Friede, H. M. Iron Age metal working in the Magaliesberg area. *Journal of the South African Institute of Mining and Metallurgy* 1977: 224-232.

Huffman, T. N 2007. *Handbook to the Iron Age*. The archaeology of Pre-Colonial farming societies in southern Africa. University of KwaZulu Natal Press. South Africa.

National Heritage Resources Act (Act No. 25 of 1999).

Pelser, A. 2009. Travelling through Time: Archaeology and the Vredefort Dome. In: Reimold, U. & Gibson, R. (eds) *Meteorite Impact! The Danger from Space and South SAHRA APM*. May 2007. Guidelines: Minimum standards for the archaeological and paleontological components of impact assessment reports.

Pistorius, J.J. 1992. *Molokwane: An Iron Age Bakwena Village*. Johannesburg: Perskor Printers.

**APPENDIX A**

LIST OF LEGISLATION APPLICABLE TO THE SITE

## 12. LEGISLATION

National Heritage Resources Act 25 of 1999

### 12.1 Section 3 of the NHRA 25 of 1999

---

According to Section 3 under **National Estate** of the National Heritage Act 25 of 1999 the heritage resources in South Africa includes the following:

“(1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.

(2) Without limiting the generality of subsection (1), the national estate may include –

(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 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) movable 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, photographic 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).

(3) Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of –

(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

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

## **12.2 Section 36 of NHRA 25 of 1999**

---

According to Section 36 under **Burial grounds and graves** of the National Heritage Act 25 of 1999 the graves in South Africa are protected as follows:

- (1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.
- (2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.
- (3)(a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—
  - (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
  - (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
  - (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- (4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation

and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

- (5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—
  - (a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
  - (b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.
- (6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—
  - (a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
  - (b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.
- (7)(a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.
- (b) The Minister must publish such lists as he or she approves in the Gazette.

- (8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.
- (9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

### **12.3 Section 38 of NHRA 25 of 1999**

---

According to Section 38 under Heritage resources management of the National Heritage Act 25 of 1999 the heritage resources in South Africa should be managed in the following:

“(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50 m in length;

(c) any development or other activity which will change the character of a site—

(i) exceeding 5 000 m<sup>2</sup> in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

(2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection (1)—

(a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or

(b) notify the person concerned that this section does not apply.

(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

(a) The identification and mapping of all heritage resources in the area affected;

(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;

(c) an assessment of the impact of the development on such heritage resources;

(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(g) plans for mitigation of any adverse effects during and after the completion of the proposed development.

(4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development, decide—

(a) whether or not the development may proceed;

(b) any limitations or conditions to be applied to the development;

(c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;

(d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and

(e) whether the appointment of specialists is required as a condition of approval of the proposal.

(5) A provincial heritage resources authority shall not make any decision under subsection (4) with respect to any development which impacts on a heritage resource protected at national level unless it has consulted SAHRA.

(6) The applicant may appeal against the decision of the provincial heritage resources authority to the MEC, who—

(a) must consider the views of both parties; and

(b) may at his or her discretion—

(i) appoint a committee to undertake an independent review of the impact assessment report and the decision of the responsible heritage authority; and

(ii) consult SAHRA; and

(c) must uphold, amend or overturn such decision.

(7) The provisions of this section do not apply to a development described in subsection (1) affecting any heritage resource formally protected by SAHRA unless the authority concerned decides otherwise.

(8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.

(9) The provincial heritage resources authority, with the approval of the MEC, may, by notice in the Provincial Gazette, exempt from the requirements of this section any place specified in the notice.

(10) Any person who has complied with the decision of a provincial heritage resources authority in subsection (4) or of the MEC in terms of subsection (6) or other requirements referred to in subsection (8), must be exempted from compliance with all other protections in terms of this Part, but any existing heritage agreements made in terms of section 42 must continue to apply.

