

**Heritage impact report for the  
PROPOSED 88KV POWER LINE FROM WATERSHED SUBSTATION,  
LICHTENBURG, TO THE MMABATHO SUBSTATION,  
NORTH WEST GAUTENG PROVINCE**

**THE PROJECT:**

Development of a 88kV electricity supply line.

**THIS REPORT:**

HERITAGE IMPACT REPORT FOR THE PROPOSED 88KV POWER LINE FROM WATERSHED SUBSTATION, LICHTENBURG, TO THE MMABATHO SUBSTATION, NORTH WEST GAUTENG PROVINCE

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## EXECUTIVE SUMMARY

### **HERITAGE IMPACT REPORT FOR THE PROPOSED 88KV POWER LINE FROM WATERSHED SUBSTATION, LICHTENBURG, TO THE MMABATHO SUBSTATION, NORTH WEST GAUTENG PROVINCE**

Eskom propose the development of the Watershed-Mmabatho 88kV electricity sub-transmission line in order to strengthen the electricity supply in the Lichtenburg/Mmabatho area of North West Province.

A previous impact assessment, including a heritage impact assessment report (Pretorius 2004), was done for this route. Consequently, in 2005 a RoD was received under ECA. However, as the power line was not built within the validity period, the line now requires a new authorization under NEMA. An independent heritage consultant was appointed by **ARCUS Gibb (Pty) Ltd** to conduct a survey to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of the proposed route for the powerline.

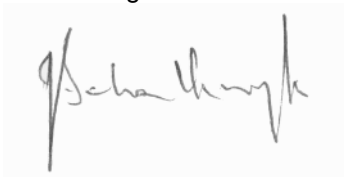
As the route is still the same, the original impact assessment report is taken as valid. However, the whole route was subjected to a new survey in October 2008 to determine if any additional sites could be identified. A number of sites have been identified in the area. These are viewed to have the following significance:

- Graves, cemeteries, etc. high on a local level
- Rock engraving sites, high on a regional level
- Mining sites, specifically the built environment, high on a regional level.

All sites are classified as of Grade III significance, with the exception of the rock art and the mining sites (built environment) which are classified to be of Grade II (NHR Act Section 7) significance. Except for these sites, it would be possible to implement mitigation measures (NHR Act Section 35). These include, in summary, the documentation and test excavation of each site where an impact is to occur. An impact can be described as a powerline crossing over a site, a tower structure being located on a site, or infrastructure development, e.g. access roads crossing sites.

Therefore, based on what was found and its evaluation, it is recommended that the proposed development can continue in the proposed route, on condition of acceptance of the following recommendations:

- One the final route has been selected, an archaeologist must inspect all positions where tower structures are to be erected.
- The mitigation measures as set out in Section 8.2 of this report should be implemented prior to the development taking place. Of course, this will subject to SAHRA approval and their issuing a permit for the destruction of the sites.
- The developer must ensure that an archaeologist inspect each site selected for the development of any infrastructure development such as access routes, construction campsites, borrow pits, etc.
- If archaeological sites are exposed during construction work, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.



J A van Schalkwyk  
Heritage Consultant

**TECHNICAL SUMMARY**

<b>Property details</b>						
Province	North West Province					
Magisterial district	Molopo, Ditsobotla, Lichtenburg					
Topo-cadastral map	2525DC, 2525DD, 2526CC, 2626AA					
Closest town	Mmabatho/Lichtenburg					
Farm name & no.	Various					
Portions/Holdings	Various					
Average altitude	1300 m					
Coordinates	Linear (approximate)					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 25.84532	E 25.67714	2	S 25.90847	S 25.88479
	5	S 25.99435	E 26.09282	4	E 26.09330	E 26.14247

<b>Development criteria in terms of Section 38(1) of the NHR Act</b>	Yes/No
Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	Yes
Construction of bridge or similar structure exceeding 50m in length	
Development exceeding 5000 sq m	
Development involving three or more existing erven or subdivisions	
Development involving three or more erven or divisions that have been consolidated within past five years	
Rezoning of site exceeding 10 000 sq m	
Any other development category, public open space, squares, parks, recreation grounds	

<b>Development</b>	
Description	Development of a 88kV electricity transmission line
Project name	Watershed-Mmabatho line

<b>Land use</b>	
Previous land use	Agriculture
Current land use	Agriculture

<b>Heritage sites assessment</b>		
<i>Site type</i>	<i>Site significance</i>	<i>Site grading (Section 7 of NHRA)</i>
Graves/cemeteries	High on local level	Grade III
<b>Impact assessment</b>		
<i>Impact</i>	<i>Mitigation</i>	<i>Permits required</i>
Possible	Relocated	SAHRA, Provincial

<b>Heritage sites assessment</b>		
<i>Site type</i>	<i>Site significance</i>	<i>Site grading (Section 7 of NHRA)</i>
Historic structures	High on regional level	Grade II
<b>Impact assessment</b>		
<i>Impact</i>	<i>Mitigation</i>	<i>Permits required</i>
Possible	Avoid sites	SAHRA

<b>Heritage sites assessment</b>		
<i>Site type</i>	<i>Site significance</i>	<i>Site grading (Section 7 of NHRA)</i>
Rock engravings	High on regional level	Grade II
<b>Impact assessment</b>		
<i>Impact</i>	<i>Mitigation</i>	<i>Permits required</i>
Possible	Avoid	SAHRA

**TABLE OF CONTENTS**

	Page
EXECUTIVE SUMMARY .....	II
TECHNICAL SUMMARY .....	III
TABLE OF CONTENTS .....	IV
LIST OF FIGURES.....	IV
GLOSSARY OF TERMS AND ABBREVIATIONS.....	V
1. INTRODUCTION.....	1
2. TERMS OF REFERENCE .....	1
3. DEFINITIONS AND ASSUMPTIONS .....	2
4. STUDY APPROACH AND METHODOLOGY .....	2
5. DESCRIPTION OF THE AFFECTED ENVIRONMENT .....	3
6. SITE SIGNIFICANCE AND ASSESSMENT .....	5
7. IDENTIFICATION OF RISK SOURCES .....	6
8. RECOMMENDED MANAGEMENT MEASURES.....	6
9. RECOMMENDATIONS.....	8
10. REFERENCES.....	9
APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES .....	10
APPENDIX 2. RELEVANT LEGISLATION .....	12
APPENDIX 3: SURVEY RESULTS .....	14
APPENDIX 4: ILLUSTRATIONS.....	16

**LIST OF FIGURES**

	Page
Fig. 1. Location of the study area (green line) in regional context. ....	3
Fig. 2. The study area, showing the location of known heritage sites. ....	14
Fig. 3. The Mmabatho substation. ....	16
Fig. 4. A section of the existing line. ....	16
Fig. 5. The Watershed substation. ....	17
Fig. 6. Where it all began. The cattle dip where the first diamonds were found. ....	18
Fig. 7. One of the old houses in the Bakerville area. ....	19
Fig. 8. Mining activities in the area.....	20
Fig. 9. Old diggings. ....	21
Fig. 10. The cemetery in Bakerville.....	22

**GLOSSARY OF TERMS AND ABBREVIATIONS****STONE AGE**

Early Stone Age	2 000 000 - 150 000 Before Present (BP)
Middle Stone Age	150 000 - 30 000 BP
Late Stone Age	30 000 - until c. AD 200

**IRON AGE**

Early Iron Age	AD 200 - AD 900
Middle Iron Age	AD 900 - AD 1300
Late Iron Age	AD 1300 - AD 1830

**HISTORIC PERIOD**

Since the arrival of the white settlers - c. AD 1840 in this part of the country

ASAPA	Association of Southern African Professional Archaeologists
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency

# HERITAGE IMPACT REPORT FOR THE PROPOSED 88KV POWER LINE FROM WATERSHED SUBSTATION, LICHTENBURG, TO THE MMABATHO SUBSTATION, NORTH WEST GAUTENG PROVINCE

## 1. INTRODUCTION

Eskom propose the development of the Watershed-Mmabatho 88kV electricity sub-transmission line in order to strengthen the electricity supply in the Lichtenburg/Mmabatho area of North West Province.

A previous impact assessment, including a heritage impact assessment report (Pretorius 2004), was done for this route. Consequently, in 2005 a RoD was received under ECA. However, as the power line was not built within the validity period, the line now requires a new authorization under NEMA. An independent heritage consultant was appointed by **ARCUS Gibb (Pty) Ltd** to conduct a survey to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of the proposed route for the powerline.

As the route is still the same, the original impact assessment report is taken as valid. However, the whole route was subjected to a new survey in October 2008 to determine if any additional sites could be identified.

This HIA report forms part of the Environmental Impact Assessment (EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and was done in accordance with Section 38 of the National Heritage Resources Act, No. 25 of 1999 and is intended for submission to the South African Heritage Resources Agency (SAHRA).

## 2. TERMS OF REFERENCE

The scope of work consisted of conducting a Phase 1 archaeological survey of the site in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

This include:

- Conducting a desk-top investigation of the area
- A visit to the proposed development site

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development areas;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

### 3. DEFINITIONS AND ASSUMPTIONS

The following aspects have a direct bearing on the survey and the resulting report:

- *Cultural resources* are all non-physical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.
- The *significance* of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.
- Sites regarded as having low significance have already been recorded in full and require no further mitigation. Sites with medium to high significance require further mitigation.
- The latitude and longitude of archaeological sites are to be treated as sensitive information by the developer and should not be disclosed to members of the public.

### 4. STUDY APPROACH AND METHODOLOGY

#### 4.1 Extent of the Study

This survey and impact assessment covers the area as presented in Section 5 and as illustrated in Figure 1 - 3.

#### 4.2 Methodology

##### 4.2.1 Preliminary investigation

###### 4.2.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted - see the list of references below.

###### 4.2.1.2 Data bases

The *Heritage Atlas Database*, the *Environmental Potential Atlas* and the *National Archives of South Africa* were consulted.

###### 4.2.1.3 Other sources

Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

##### 4.2.2 Field survey

The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. The area that had to be investigated, was identified by ARCUS Gibb by means of maps. The area was investigated by



travelling the route as far as possible. Fortunately, the proposed route will follow an existing line, which made the survey easy. Special attention was given to topographical occurrences such as trenches, holes, outcrops and clusters of trees.

#### 4.2.3 Documentation

All sites, objects and structures that are identified are documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities are determined by means of the *Global Positioning System (GPS)*<sup>1</sup> and plotted on a map. This information is added to the description in order to facilitate the identification of each locality.

Map datum used: Hartebeeshoek 94 (WGS84).

#### 4.3 Limitations

In some areas access to the properties could not be obtained.

### 5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

#### 5.1 Site location

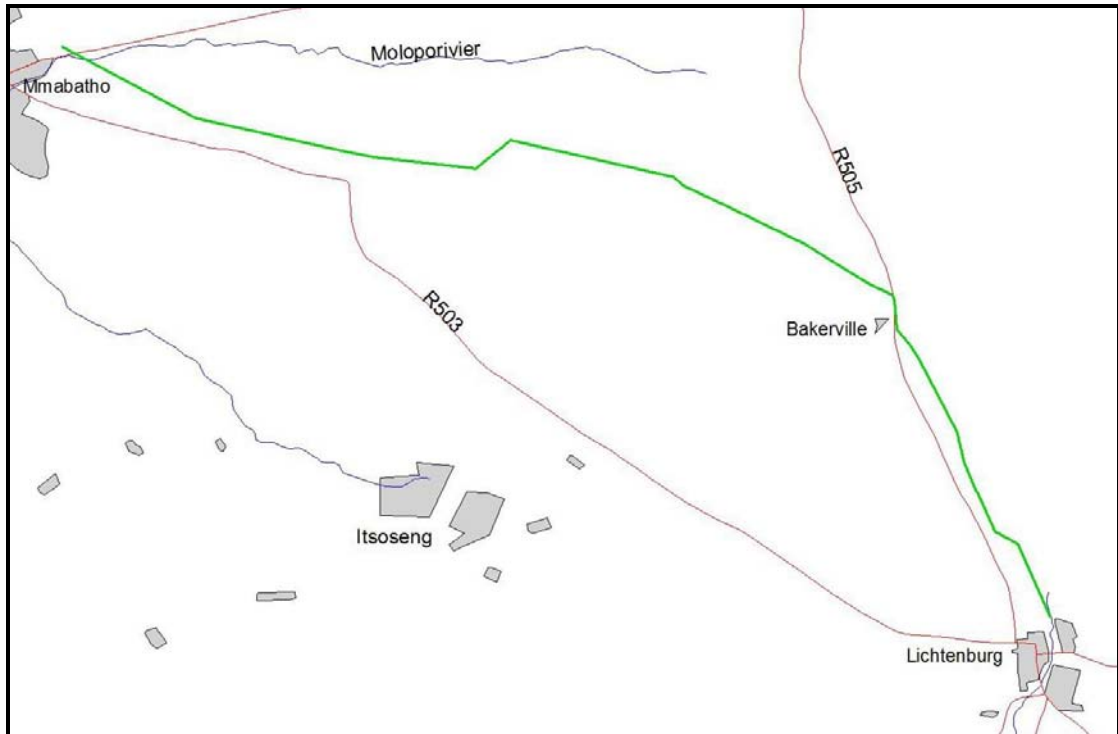


Fig. 1. Location of the study area (green line) in regional context.

<sup>1</sup> According to the manufacturer a certain deviation may be expected for each reading. Care was, however, taken to obtain as accurate a reading as possible, and then to correlate it with reference to the physical environment before plotting it on the map.

The study area is linear in nature and runs from the eastern side of Mmabatho (Mafikeng), in a south-eastern direction towards the town of Lichtenburg (Fig. 1). For more detail, please see the Technical summary presented above.

## 5.2 Site description

In the region of Mmabatho, the geology is made up of andesite, followed by sand further to the south and east. The section surrounding Bakerville and Lichtenburg is made up of dolomite. The topography of the area can be described as plain, with pans occurring all over. A few rivers pass through the area.

In the north western section, the vegetation is classified as Mixed Bushveld, and in the south eastern section it is classified as Rocky Highveld Grassland. Currently, the land use is largely grazing for cattle.

## 5.3 Regional overview

### 5.3.1 Stone Age

This part of the world has been inhabited since Early (ESA) and Middle Stone Age (MSA) times. Tools dating to these periods are mostly found in the vicinity of watercourses, e.g. the Molopo River. Large numbers were also unearthed by the diamond mining activities in the Bakerville area. However, Later Stone Age people also inhabited the region, as is evidenced from a number of sites with rock engraving found in the region.

### 5.3.2 Iron Age

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Broederstroom south of Hartebeespoort Dam dating to AD 470. Having only had cereals (sorghum, millet) that need summer rainfall, Early Iron Age (EIA) people did not move outside this rainfall zone, and neither did they occupy the central interior highveld area. Because of their specific technology and economy, Iron Age people preferred to settle on the alluvial soils near rivers for agricultural purposes, but also for firewood and water.

The occupation of the larger geographical area (including the study area) did not start much before the 1500s. By the 16th century things changed, with the climate becoming warmer and wetter, creating condition that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the treeless plains of the Free State and North West Province.

Although a few Late Iron Age sites are known to occur in the region, their number increases drastically as one travels to the south and east.

### 5.3.3 Historic period

This area was occupied by white farmers since to 1850s. As resources were few the depended on farming and hunting to survive. During the Anglo-Boer War, a number of skirmishes took place in the larger region. Most famous of these was the siege of Mafikeng.

In the early twentieth century, diamonds were found in various places in the Lichtenburg district of the former Transvaal Province. However, it was only during the early 1920s that large quantities of diamonds were found, resulting in the proclamation of the Bakerville (more correctly: the Lichtenburg-diamond field) in 1926. Thousands of miners swarmed to the area in search of wealth. At the height of activity, in 1927, an estimated 90 000 people were involved at the diamond fields. Bakerville was the most important of a number of settlements

where the miners congregated. It was laid out in 1927 and is named after A W Baker, the then owner of the farm Uitgevonden 355JP. As early as 1928, activities started to decline - and continued to decline. Currently only a few people are involved in diamond mining in this area.

## 5.4 Identified sites

### 5.4.1 Stone Age

A site containing rock engravings is reported to exist on the farm Bauwel 126, which is one of the farms over which the line will cross. However, the available coordinates did not prove to be correct for locating the site

### 5.4.2 Iron Age

No sites dating to the Iron Age were identified in the region of the study area.

### 5.4.3 Historic period

A number of features dating to the historic period were identified in the study area. This includes the remains of an old house in Bakerville, and a number of cemeteries

## 6. SITE SIGNIFICANCE AND ASSESSMENT

### 6.1 Statement of significance

According to the NHR Act, Section 2(vi), the **significance** of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Sites regarded as having low significance are viewed as being recorded in full after identification and would require no further mitigation. Sites with a medium to high significance would require mitigation. Mitigation, in most cases the excavation of a site, is in essence destructive and therefore the impact can be viewed as high and as permanent.

A variety of heritage sites are known to occur in the area of the proposed development and are evaluated to have the following significance:

- Graves and cemeteries are evaluated to have a high significance on a local level;
- Rock engraving sites are evaluated to have a high significance on a regional level;
- Mining sites, specifically the built environment, are evaluated to have a high significance on a regional level.

**In terms of Section 7 of the NHR Act, No. 25 of 1999, the graves and cemeteries are evaluated to have a Grade III significance. The mining and rock art sites are evaluated to have a Grade II significance.**

### 6.2 Impact assessment

Impact analysis of cultural heritage resources under threat of the proposed development, are based on the present understanding of the development.

- It is possible that the power line might impact on some of the cemeteries or the rock art sites by passing over it. This impact is viewed to be low. However, if a tower structure or construction road is to pass over it, the impact becomes high.

## 7. IDENTIFICATION OF RISK SOURCES

A Heritage Impact Assessment is focused on two phases of a proposed development: **the construction** and **operation phases**. The following project actions may impact negatively on archaeological sites and other features of cultural importance. The actions are most likely to occur during the construction phase of a project.

### Construction phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Construction work
Anticipated risks	
- looting of sites	Curious workers

### Operation phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Not keeping to management plans
Anticipated risks	
- damage to sites	Unscheduled construction/developments
- looting of sites	Visitors removing objects as keepsakes

## 8. RECOMMENDED MANAGEMENT MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

### 8.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the National Heritage Resources Act (Act No. 25 of 1999), should these be discovered during construction.

### 8.1.2 Construction phase

General management objectives and commitments:

- To avoid disturbing sites of heritage importance; and
- To avoid disturbing burial sites.

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction work.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

### 8.1.2 Operation phase

General management objectives and commitments:

- To avoid disturbing sites of heritage importance.

The following shall apply:

- Continued care should be taken to observe discovery of any sites of heritage significance during operation. Should any archaeological artifacts and palaeontological remains be exposed during operations, work on the area where the artefacts were found, shall cease immediately and the appropriate person shall be notified as soon as possible;
- Upon receipt of such notification, an Archaeologist or Palaeontologist shall investigate the site as soon as practicable. Acting upon advice from these specialists, the necessary actions shall be taken;
- Under no circumstances shall archaeological or palaeontological artefacts be removed, destroyed or interfered with by anyone on the site during operations; and
- The operator shall advise its workers of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51(1).

## 8.2 Mitigation measures

Existing information on the location of heritage sites was plotted on a map. Fig. 3 shows the areas where there are known clusters of sites. From this it was determined that only one section, in the vicinity of Bakerville, would be a problem, although ground truthing might indicate more sites in other sections of the line as well.

The following recommendations are proposed as guidelines for the mitigation of the sites that would be impacted by the construction of the powerline:

- Documentation and mapping of the sites

A site plan must be compiled to indicate the surface features of the sites before excavations of any kind are commenced. This must be supported by photographic documentation.

- Determination of the extent/nature of the deposit.

Depending on the size of the site, trenches/squares must be excavated on the sites in order to recover sufficient material to retain information on the sites for future research purposes. The excavations should ideally take place in the area where the impact is going to be.

- Documentation of materials and features

All features and materials must be documented in detail and plotted on a site plan.

- Curation of finds

All finds must be catalogued (marked and inventoried) and curated according to standard practices. This material must then be transferred, accompanied by all the documentation, to a local heritage institution accepted as such by SAHRA.

## 9. RECOMMENDATIONS

A single route has been identified for the powerline. For most of the distance, it will run parallel to an existing line.

The identified sites are viewed to have the following significance:

- Graves, cemeteries, etc. high on a local level
- Rock engraving sites, high on a regional level
- Mining sites, specifically the built environment, high on a regional level.

All sites are classified as of Grade III significance, with the exception of the rock art and the mining sites (built environment) which are classified to be of Grade II (NHR Act Section 7) significance. Except for these sites, it would be possible to implement mitigation measures (NHR Act Section 35). These include, in summary, the documentation and test excavation of each site where an impact is to occur. An impact can be described as a powerline crossing over a site, a tower structure being located on a site, or infrastructure development, e.g. access roads crossing sites.

Therefore, based on what was found and its evaluation, it is recommended that the proposed development can continue in the proposed route, on condition of acceptance of the following recommendations:

- Once the final route has been selected, an archaeologist must inspect all positions where tower structures are to be erected.
- The mitigation measures as set out in Section 8.2 of this report should be implemented prior to the development taking place. Of course, this will be subject to SAHRA approval and their issuing a permit for the destruction of the sites.
- The developer must ensure that an archaeologist inspect each site selected for the development of any infrastructure development such as access routes, construction campsites, borrow pits, etc.
- If archaeological sites are exposed during construction work, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

## 10. REFERENCES

### 10.1 Data bases

Chief Surveyor General

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

Heritage Atlas Database, Pretoria.

National Archives of South Africa

### 10.2 Literature

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Van den Bergh, G. 1996. *24 Battles and Battle Fields of the North West Province*. Potchefstroom: The North West Tourism Association.

Van Schalkwyk, J.A. & De Jong, R. 1995. *Reconnaissance of remaining cultural resources in the Bakerville Diamond Fields*. Unpublished report 1995KH07. Pretoria: National Cultural History Museum.

### 10.3 Maps

1: 50 000 Topocadastral maps – 2525DC, 2525DD, 2526CC, 2626AA

## APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES

### Significance

According to the NHRA, Section 2(vi) the **significance** of a heritage sites and artefacts is determined by it aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

<b>1. Historic value</b>				
Is it important in the community, or pattern of history				
Does it have strong or special association with the life or work of a person, group or organisation of importance in history				
Does it have significance relating to the history of slavery				
<b>2. Aesthetic value</b>				
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group				
<b>3. Scientific value</b>				
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage				
Is it important in demonstrating a high degree of creative or technical achievement at a particular period				
<b>4. Social value</b>				
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons				
<b>5. Rarity</b>				
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage				
<b>6. Representivity</b>				
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects				
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class				
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.				
<b>7. Sphere of Significance</b>		High	Medium	Low
International				
National				
Provincial				
Regional				
Local				
Specific community				
<b>8. Significance rating of feature</b>				
1.	Low			
2.	Medium			
3.	High			



**Significance of impact:**

- low where the impact will not have an influence on or require to be significantly accommodated in the project design
- medium where the impact could have an influence which will require modification of the project design or alternative mitigation
- high where it would have a “no-go” implication on the project regardless of any mitigation

**Certainty of prediction:**

- Definite: More than 90% sure of a particular fact. Substantial supportive data to verify assessment
- Probable: More than 70% sure of a particular fact, or of the likelihood of that impact occurring
- Possible: Only more than 40% sure of a particular fact, or of the likelihood of an impact occurring
- Unsure: Less than 40% sure of a particular fact, or the likelihood of an impact occurring

**Recommended management action:**

For each impact, the recommended practically attainable mitigation actions which would result in a measurable reduction of the impact, must be identified. This is expressed according to the following:

- 1 = no further investigation/action necessary
- 2 = controlled sampling and/or mapping of the site necessary
- 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary
- 4 = preserve site at all costs

**Legal requirements:**

Identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project, if mitigation is necessary.

## APPENDIX 2. RELEVANT LEGISLATION

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(4) No person may, without a permit issued by the responsible heritage resources authority-

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

In terms of cemeteries and graves the following (Section 36):

(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) 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.

The National Heritage Resources Act (Act no 25 of 1999) stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I:** Heritage resources with qualities so exceptional that they are of special national significance;
- **Grade II:** Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- **Grade III:** Other heritage resources worthy of conservation, and which prescribes heritage resources assessment criteria, consistent with the criteria set out in section 3(3), which must be used by a heritage resources authority or a local authority to assess the intrinsic, comparative and contextual significance of a heritage resource and the relative benefits and costs of its protection, so that the appropriate level of grading of the resource and the consequent responsibility for its management may be allocated in terms of section 8.

Presenting archaeological sites as part of tourism attraction requires, in terms 44 of the Act, a Conservation Management Plan as well as a permit from SAHRA.

(1) Heritage resources authorities and local authorities must, wherever appropriate, co-ordinate and promote the presentation and use of places of cultural significance and heritage resources which form part of the national estate and for which they are responsible in terms of section 5 for public enjoyment, education, research and tourism, including-

- (a) the erection of explanatory plaques and interpretive facilities, including interpretive centres and visitor facilities;
- (b) the training and provision of guides;
- (c) the mounting of exhibitions;
- (d) the erection of memorials; and
- (e) any other means necessary for the effective presentation of the national estate.

(2) Where a heritage resource which is formally protected in terms of Part I of this Chapter is to be presented, the person wishing to undertake such presentation must, at least 60 days prior to the institution of interpretive measures or manufacture of associated material, consult with the heritage resources authority which is responsible for the protection of such heritage resource regarding the contents of interpretive material or programmes.

(3) A person may only erect a plaque or other permanent display or structure associated with such presentation in the vicinity of a place protected in terms of this Act in consultation with the heritage resources authority responsible for the protection of the place.

### APPENDIX 3: SURVEY RESULTS

See Appendix 1 for an explanation of the conventions used in assessing the cultural remains.

Map datum used: Hartebeeshoek 94 (WGS84).

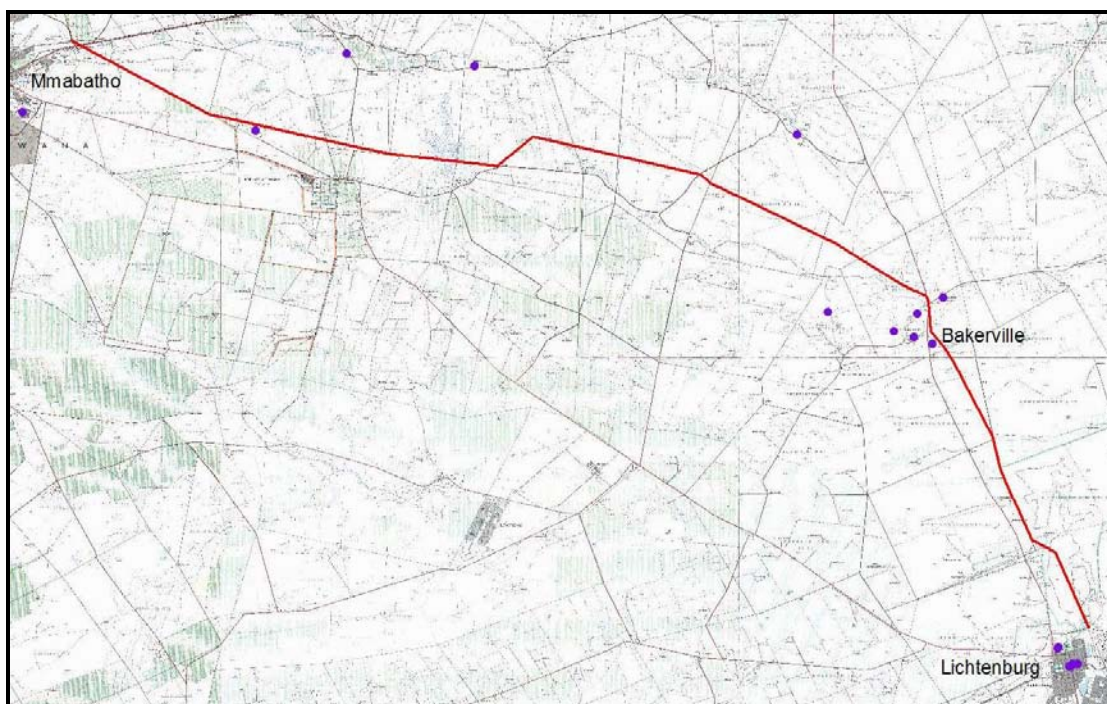


Fig. 2. The study area, showing the location of known heritage sites.

(Map 2525DC, 2525DD, 2526CC, 2626AA: Chief Directorate Survey and Mapping.)

#### Known sites in the region:

No.	Name	Classification	Farm name	Significance
1	Cannon Koppie Fort	Historic	Mafekeng Allotment Area	III
2	Ammunition Store	Historic	Mmabatho	III
3	Imperial Reserve Beacon	Historic	Mmabatho	III
4	Concentration Camp Cemetery	Historic	Mmabatho	II
5	Memorial: Anglo Boer War	Historic	Mafikeng Town	III
6	Memorial: World War 1	Historic	Mafikeng Town	III
7	Hellgate 2-14MA	Stone Age	Bauwel 126	II
8	Open site	Stone Age	Zeekoevallei 83JO	II
9	Cemetery: Rus in Vrede	Historic	Doornplaat 106	III
10	Cemetery	Historic	Wagendrift 100	III
11	Historical Cattle Dip	Historic	Uitgevonden 355jp	II

12	Water Mill	Historic	Naauwpoort 328JP	
13	Bakerville	Historic	Uitgevonden 355JP	
14	Cemetery	Historic	Trekdrift 360	
15	Cemetery	Historic	Uitgevonden 355JP	
16	Cemetery	Historic	Grasfontein 356JP	
17	Mine offices	Historic	Uitgevonden 355JP	
18	Cemetery	Historic	Uitgevonden 355JP	
19	"Klipkerk" Church	Historic	Lichtenburg Town	
20	Memorial: Anglo Boer War	Historic	Lichtenburg Town	
21	Monument: Genl Koos de la Rey	Historic	Lichtenburg Town	
22	Memorial: Great Trek	Historic	Lichtenburg Town	
23	War Graves	Historic	Lichtenburg Town	
24	Grave: Gen Koos de la Rey	Historic	Lichtenburg Town	
25	Battle of Lichtenburg	Historic	Lichtenburg Town	

**APPENDIX 4: ILLUSTRATIONS**



Fig. 3. The Mmabatho substation.



Fig. 4. A section of the existing line.



Fig. 5. The Watershed substation.



Fig. 6. Where it all began. The cattle dip where the first diamonds were found.





Fig. 7. One of the old houses in the Bakerville area.



Fig. 8. Mining activities in the area.



Fig. 9. Old diggings.



Fig. 10. The cemetery in Bakerville.