



PHASE 1

ARCHAEOLOGICAL IMPACT ASSESSMENT

**INVESTIGATIONS FOR THE PROPOSED ESTABLISHMENT OF 132KV
POWER LINE TURN OFF TO STYLDRIFT SUBSTATION
WITH IN THE JURISDICTION OF MOSES KOTANE LOCAL MUNICIPALITY,
BOJANALA PLATINUM DISTRICT,
NORTH WEST PROVINCE**

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EXECUTIVE SUMMARY

Note: This report follows minimum standard guidelines required by the South African Heritage Resources Agency (SAHRA) for compiling a Phase 1 Archaeological Impact Assessment (AIA).

Site name and location: The proposed 800M, 132kV power line establishment is located north east of Bakubung Platinum mine, immediately below the main access tarred road, bridge and Perennial stream, on the farm Styldrift 90-JQ. The proposed project is situated on the western outskirts of Rustenburg Central Business District within Moses Kotane Local Municipality of the Bojanala District, North West Province, South Africa.

Local Authority: Moses Kotane Local Municipality

Magisterial Authority: Bojanala District Municipality

Developer: Eskom PTY (LTD)

Date of field work: 20-February 2012

Date of report: 21 February 2012

SURVEY AIMS AND ASSESMENT FINDINGS

The Phase 1 Archaeological scoping study (Archaeological Impact Assessments) as required in terms of section 38 of the National Heritage Resource Act (Act 25 of 1999) was done for the proposed 132kV power line within Moses Kotane Local Municipality of the North West Province, South Africa.

The aims with the Phase1 Archaeological Impact Assessment (AIA) program were the following:

- To establish whether any of the type and ranges of heritage resources as outlined in section 3 of the National Heritage Resources Act (Act 25 of 1999) do occur in or near the proposed site, and if so, to establish the significance of these heritage resources.
- To establish whether such heritage resources will be affected by the proposed development activities, and if so, to determine possible mitigation measures that can be applied to these heritage resources.

The phase 1 heritage impact assessment survey for the proposed power line revealed no heritage resources sites within the proposed power line establishment corridors.

Disclaimer: Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Vhufahashu Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.

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PROFESSIONAL DECLARATION

I, the undersigned, Mr. Ndivhuho Eric Mathoho hereby declare that I am a Professional archaeologist accredited with the association for South African Professional Archaeologist (ASAPA) Membership No 312 and that Vhufashu Heritage Consultants is an independent consultants with no association or with no any other interest what so ever with any institution, organization, or whatever and that the remuneration earned from consulting work constitute the basis of Company livelihood and income.

Mr. Mathoho Ndivhuho Eric



.....
Archaeologist and Heritage Consultant for Vhufashu Heritage Consultants
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TABLE OF CONTENTS

CONTENT	PAGE
EXECUTIVE SUMMARY	2
SURVEY AIMS AND ASSESMENT FINDINGS	2
ACKNOWLEDGEMENTS:	4
HERITAGE CONSULTANT: VHUFHASHU HERITAGE CONSULTANTS CC	4
PROFESSIONAL DECLARATION	5
ABBREVIATIONS	8
DEFINITIONS	9
1. INTRODUCTION	10
TYPE AND RANGES OF HERITAGE RESOURCES AS OUTLINED IN SECTION 3 OF THE NATIONAL HERITAGE RESOURCES ACT (NO 25 OF 1999)	12
HISTORICAL REMAINS	12
BRIEF LEGISLATIVE REQUIREMENTS	13
-ARCHAEOLOGY, PALEONTOLOGY AND METEORITES	13
-BURIAL GROUNDS AND GRAVES	13
-HERITAGE RESOURCES MANAGEMENT	13
2. AIM OF STUDY	14
2.1 PROJECT DEVELOPERS AND CONSULTANTS	14
3. TERMS OF REFERENCE	15
4. METHODOLOGY	15
PHYSICAL SURVEY	15
DOCUMENTATION.....	16
RESTRICTIONS	16
5. ASSESMENT CRITERIA	16
6.1 SITE SIGNIFICANCE	17
6.2 IMPACT RATING	18
6.3 CERTAINTY.....	19

6.4 DURATION	19
6.5 MITIGATION	19
7. DESKTOP STUDY: ARCHAEOLOGICAL BACKGROUND AND HERITAGE	20
8. SITE LOCATION AND PROJECT DESCRIPTION	21
8.3. DETAILED DESCRIPTION OF THE PROPOSED ESTABLISHMENT POWERLINE ROUTE. .	23
9. ASSESMENT OF SITES AND FINDS.....	23
11. CONCLUSIONS AND RECOMMENDATIONS.....	23
14. TOPOGRAPHICAL MAP	24
15. REFERENCE	25

LIST OF FIGURES

Figure 1: The proposed power line will turn off from these existing lines at the power line bend.....	22
Figure 2; View of Styldrift mine at the photo background which will be the proposed power line end point.....	22

ABBREVIATIONS

AIA	Archaeological Impact Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
VHHC	Vhufa Hashu Heritage Consultants
LIA	Late Iron Age
SAHRA	South African Heritage Resources Agency

DEFINITIONS

Archaeological Material remains resulting from human activities, which are in a state of disuse and are in, or on, land and which are older than 100 years, including artifacts, human and hominid remains, and artificial features and structures.

Chance Finds Archaeological artifacts, features, structures or historical cultural remains such as human burials that are found accidentally in context previously not identified during cultural heritage scoping, screening and assessment studies. Such finds are usually found during earth moving activities such as water pipeline trench excavations.

Cultural Heritage Resources Same as Heritage Resources as defined and used in the South African Heritage Resources Act (Act No. 25 of 1999). Refer to physical cultural properties such as archaeological and palaeontological sites; historic and prehistoric places, buildings, structures and material remains; cultural sites such as places of ritual or religious importance and their associated materials; burial sites or *graves* and their associated materials; geological or natural features of cultural importance or scientific significance. Cultural Heritage Resources also include intangible resources such as religion practices, ritual ceremonies, oral histories, memories and indigenous knowledge.

Cultural Significance The complexities of what makes a place, materials or intangible resources of value to society or part of, customarily assessed in terms of aesthetic, historical, scientific/research and social values.

Grave A place of interment (variably referred to as burial), including the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery.

Historic Material remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

In Situ material *Material culture* and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Late Iron Age this period is associated with the development of complex societies and state systems in southern Africa.

Material culture Buildings, structure, features, tools and other artefacts that constitute the remains from past societies.

Site A distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

1. INTRODUCTION

Eskom LTD (PTY) commissioned studies for the proposed establishment of a new 132kV power line turn off to Styldrift substation, the project is situated on the western outskirts of Rustenburg CBD. (see the affected farms on table 1 below). They appointed Enviroxcellence Consultants to handle environmental aspects of the proposed project. Enviroxcellence Consultants then appointed Vhufahashu Heritage Consultants to conduct an Archaeological and Cultural Heritage Impact Assessment study as part of the Environmental Impact Assessment (EIA) for the proposed project.

The proposed activities form part of the development process, where application for Environmental Assessment Authorization must be completed. Archaeological Impact Assessment (AIA) report form part of a series of appendices prepared for Environmental Impact Assessment (Full EIA) Report to be submitted to the to the North West Department of Agriculture Conservation Environment and Rural Development, in support of the application as amended by the National Environmental Management (NEMA) Act No. 107 of 1998. Information presented in this report form the basis of Archaeological resources assessment of the proposed project as the proposal constitutes an activity, which may potentially be harmful to heritage resources that may occur in the proposed demarcated area.

The National Heritage Resources Act (NHRA - Act No. 25 of 1999) protects all structures and features older than 60 years (section 34), archaeological sites and material (section 35) and graves and burial sites (section 36). In order to comply with the legislation, the Applicant requires information on the heritage resources, and their significance that occur in the demarcated area. This will enable the Applicant to take pro-active measures to limit the adverse effects that the development could have on such heritage resources.

Table 1. This table shows the affected Farm by the proposed establishment of a power line turn off to Styldrifft substation

The establishment of 800m 132kV T-Off power line to Styldrifft 90 JQ

Number	Farm Name	POINT	Co-ordinates	Farm Owners
1	Styldrifft 90-JQ	A	S25° 23' 44. 9267" E27° 05' 50.7042"	Royal Administration Bafokeng
		B	S25° 23' 38. 2427" E27° 06' 23.2698"	
		C	S25° 23' 47. 1921" E27° 06' 25.7234"	

In terms of the National Heritage Resources Act (1999) the following is of relevance:

Type and ranges of heritage resources as outlined in section 3 of the National Heritage Resources Act (no 25 of 1999)

The National Heritage Act (Act No 25 of 1999, Art 3) outlines the following types and ranges of the heritage resources that qualify as part of the national estate, namely:

- (a) Places, buildings structures and equipment of cultural significance;
- (b) Places to which oral tradition are attached or which are associated with living heritage;
- (c) Historical settlement and townscapes
- (d) Landscape and natural features of cultural significance;
- (e) Geological sites of scientific or cultural importance
- (f) Archaeological and paleontological sites
- (g) Graves and burial ground including-
 - (I) Ancestral graves
 - (II) Royal graves and graves of traditional leaders
 - (III) Graves of victim of conflict
 - (IV) Graves of individuals designated by the minister by notice in the gazette;
 - (V) Historical graves and cemeteries; and
 - (VI) Other human remains which are not covered by in terms of the Human Tissue Act,1983(Act No 65 of 1983)
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including-
 - (I) object recovered from 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) object of scientific or technological interest; and
 - (VII) books, records, documents, photographs, positive and negatives, graphic, film or video material or sound recording, excluding those that are public records as defined in section1(xiv) of the National Archives of South Africa Act,1996(Act No 43 of 1996).

The National Heritage Resource Act (Act No 25 of 1999,Art 3)also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value... these criteria are the following:

- (a) its importance in the community, or pattern of South Africa's history;
- (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
- (h) Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa
- (i) Sites of significance relating to the history of slavery in South Africa.

BRIEF LEGISLATIVE REQUIREMENTS

Parts of sections 35(4), 36(3) and 38(1) (8) of the National Heritage Resources Act No. 25 of 1999 apply:

-Archaeology, paleontology and meteorites

35 (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;

(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.

-Burial grounds and graves

36. (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.

-Heritage resources management

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

(a) the construction of a road, wall, power line, 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 50m in length;

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

(i) exceeding 5000m² in extent, or

(ii) involving three or more 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 resources authority;*
- (d) the re-zoning of a site exceeding 10 000m² in extent; or*
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as 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. AIM OF STUDY

The aim of this Archaeological Impact Assessment (AIA) Study was:

- To establish whether any of the type and ranges of heritage resources as outlined in section 3 of the National Heritage Resource Act (Act 25 of 1999) do occur in or near the proposed site, and if so, to establish the significance of these heritage resources.
- To establish whether such heritage resources will be affected by the proposed development activities, and if so, to determine possible mitigation measures that can be applied to these heritage resources.

2.1 Project Developers and Consultants

Developers are encouraged to consider archaeological values in their project planning and design from the outset. This will minimize scheduling and budget difficulties at later stages. As Consultants in the archaeological assessment process, we are responsible for: (see *table 2*)

Table 2. Archaeological Assessment Process

1. Determining the presence of archaeological sites that may be adversely impacted by the proposed development, and evaluate their significance.
2. Identification of potential adverse impacts to archaeological sites protected under the National Heritage Resources Act No: 25 of 1999.
3. Assessing of the heritage significance of identified archaeological sites to assist in the development of appropriate mitigation strategies.
4. Make recommendations for avoidance or mitigation of protected or otherwise significant archaeological sites.
5. Reporting the results of these studies to the Heritage Authorities.

3. TERMS OF REFERENCE

The **Terms of Reference** for the study were to:

- (I) Assess the significance of the known cultural resources within the borders of proposed development area, in terms of their historical, social, religious, aesthetic and scientific value.
- (II) Develop mitigation or control measures for impact minimization and cultural resources preservation.
- (III) Develop procedures to be implemented if previously unidentified cultural resources are uncovered during the construction.

4. METHODOLOGY

Physical Survey

A site visit was undertaken and the proposed site was physical surveyed on foot and vehicle. The proposed site was visually inspected for any historical or archaeological material that may be impacted by the proposed establishment. The survey was conducted on 20th February 2012 by Mr. Mathoho Ndivhuho Eric and Mr. Munyai Rudzani Richard, The extent of the proposed area and corridors were determined as well as the extent of the areas to be affected by power line and access routes activities during the development. A brief literature survey relating to Pre-historical and historical context of

previous completed projects within the study area was consulted. This includes archaeological data bases kept at the Heritage Resource Agency Office in Cape Town and the Local Museums. In addition, the proposed site was studied by means of a Google map adopted from internet as well as 1:50 000 topographical map and the 1:250 000 map on which the proposed study area appears.

Documentation

All sites/find spots identified during foot surveys were documented. The documentation methodology includes digital photographs, captured by means of a Digital camera (Canon EOS1000D cameras). The descriptions as well as the physical environment of the proposed study area, which includes site layout and surround vegetation have been recorded on field note book. In cases where archaeological/historical and grave site/s were identified, documentation was envisaged with great attention to detail the site. All sites/find spots identified during the archaeological survey within and outside the development footprint corridors were geo-referenced mapped and plotted using a Global Positioning System (GPS) WGS84 datum (Garmin E-Trek Legend) and numbered accordingly.

Restrictions

It must be pointed out that heritage resources can be found in the unexpected places, it must also be borne in mind that survey may not detect all the heritage resources in a given project area. While some remains may simply be missed during surveys (observation) others may occur below the surface of the earth and may be exposed once development (such as the construction of the proposed facilities) commences.

5. ASSESSMENT CRITERIA

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The significance of archaeological and heritage sites were based on the following criteria:

- The unique nature of a site.
- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc).
- The wider historic, archaeological and geographic context of the site.
- The preservation condition and integrity of the site.
- The potential to answer present research questions.

6.1 Site Significance

The site significance classification standards as prescribed in the guideline and endorsed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used as guidelines in determining the site significance for the purpose of this report.

The classification index is represented in the Table below.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	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)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected C (GP.C)	Grade 4C	Low Significance	Destruction

Grading and rating systems of heritage resources

6.2 Impact Rating

VERY HIGH

These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or cultural) environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects.

Example: The loss of a species would be viewed by informed society as being of VERY HIGH significance.

Example: The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with VERY HIGH significance.

HIGH

These impacts will usually result in long term effects on the social and /or natural environment. Impacts rated as HIGH will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.

Example: The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of HIGH over the long term, as the area could be rehabilitated.

Example: The change to soil conditions will impact the natural system, and the impact on affected parties (e.g. farmers) would be HIGH.

MODERATE

These impacts will usually result in medium- to long-term effects on the social and/or natural environment. Impacts rated as MODERATE will need to be considered by the public or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are real, but not substantial.

Example: The loss of a sparse, open vegetation type of low diversity may be regarded as MODERATELY significant.

Example: The provision of a clinic in a rural area would result in a benefit of MODERATE significance.

LOW

These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as LOW will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.

Example: The temporary changes in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels.

Example: The increased earning potential of people employed as a result of a development would only result in benefits of LOW significance to people living some distance away.

NO SIGNIFICANCE

There are no primary or secondary effects at all that are important to scientists or the public.

Example: A change to the geology of a certain formation may be regarded as severe from a geological perspective, but is of NO SIGNIFICANCE in the overall context.

6.3 Certainty

DEFINITE: More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

PROBABLE: Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

POSSIBLE: Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

UNSURE: Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

6.4 Duration

SHORT TERM : 0 – 5 years

MEDIUM: 6 – 20 years

LONG TERM: more than 20 years

DEMOLISHED: site will be demolished or is already demolished

6.5 Mitigation

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- ✓ **A** – No further action necessary
- ✓ **B** – Mapping of the site and controlled sampling required
- ✓ **C** – Preserve site, or extensive data collection and mapping required; and
- ✓ **D** – Preserve site

7. DESKTOP STUDY: ARCHAEOLOGICAL BACKGROUND AND HERITAGE.

Archaeology/historical classification area more controversial but the broad outline is well established, historical sequence of Rustenburg area has been recognized, it follows from the distribution of archaeological sites supported by overwhelming recorded evidence provided by the existence of cultural material finger prints (remains) in which human occupation is made up of pre colonial elements (Stone Age and Iron Age) as well as the colonial farmers component.

Early humans lived here, discontinuously, for thousands of years, from the Early Stone Age, through what is known as the Middle Stone Age, and well into the Late Stone Age. That Stone Age people occupied the study area is confirmed by the occurrence of stone tools dating to the Early, Middle and Late Stone Age. The majorities of finds are classified as isolated surface occurrences, and mostly date to the Middle Stone Age. Consequently, such finds are judged to have a low significance and they require no mitigation measures.

Agro pastoralist, most Iron Age people chose specific habitant in which to live, namely, broken country with alluvial and colluvial soil that could be cultivated In addition to natural features, local climate seemed to be favorable for their survival. Iron Age people moved into southern Africa by c. AD 200, entering the area either by moving down the coastal plains, or by using a more central route with distinctive pottery. Pottery is the material culture that expresses group identity because it forms a repeated code of cultural symbols, as the design form a repeated code (Huffman 2007). It seems more likely that the first option was what brought people into the study area. From the coast they followed the various rivers inland being cultivators.

Iron Age occupation of the region seems to have taken place on a significant scale were they introduce metallurgy and worked with copper and iron. Linguistic and archaeological evidence indicates that these Iron Age inhabitants are most likely the ancestors of the BaTswana and BaSotho, as well as the BaFokeng. Indeed it was only after around 1500AD that the people became distinguishable as BaTswana and BaSotho. The BaKwena were one of the people that arose out of this group (Huffman 2007).

Van Schalkwyk (2011) sites dating to the Early Iron Age are known to occur to the south at Broederstroom and Late Iron Age occurs in the region, especially to the north. A typical stone walled sites that can be linked with Tswana- speaker and date to the period after 1600 was geo-referenced and documented north of the proposed power line development corridors between Marang to Matte smelter substation.

The 18th century period was marked by the arrival of the Korana raiders in the area, which were followed by the 19th century traders, explorer and missionaries. By the middle of the 19th century, farms were taken up and later towns were developed-Rustenburg was founded in 1850. David Livingstone, the famous English explorer, came into conflict with Voortrekker in the area in 1840. As part of the London Missionary Society, he reported that the Boers had been welcomed by the Bechuana and Mzilikazi, who had settled in the region after being expelled by Dingaan.

This was followed by a period when farmsteads were developed, as well as infrastructure (e.g. roads). Many of these farms have been in the ownership of families for generations. As a result, they possess a large corpus of information with regarding to the area and its history. A significant number of battles and skirmishes took place in the region, mostly to the north and west of the study area. The remains of blockhouses can be found on many ridges and at river crossings (Van Schalkwyk (2011)).

8. SITE LOCATION AND PROJECT DESCRIPTION

The proposed 800M 132kV power line turn off to Styldrift substation establishment is located north east of Bakubung Platinum mine, immediately below the main access tarred road, bridge and Perennial stream, on the farm Styldrift 90-JQ. The proposed project is situated on the western outskirts of Rustenburg Central Business District within Moses Kotane Local Municipality of the Bojanala District, North West Province, South Africa.

The physical environment of the area in which the proposed power line turn off transverse is characterized by a flat section of Mine land divided into two section by nearby perennial stream, section of the area is used as farm land, where livestock's were noted grazing. The area is currently covered by pioneer vegetation which includes shrubs and trees, the dominant tree species identified on site include *Acacia karoo*, *Dichrostachys cineria*, *Acacia species*, *Sclerocarrya birrea*, *Grewia Flava*, and *Ziziphus mucronata* etc.

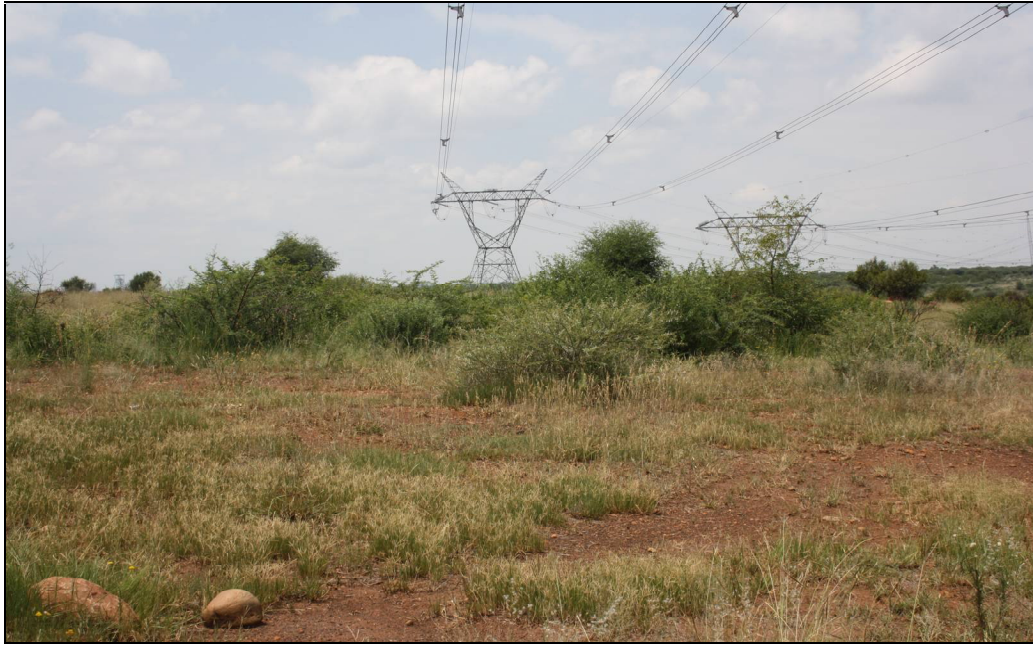


Figure 1: The proposed power line will turn off from these existing lines at the power line bend.



Figure 2: View of Styldrift mine at the photo background which will be the proposed power line end point.

8.3. DETAILED DESCRIPTION OF THE PROPOSED ESTABLISHMENT POWERLINE ROUTE.

The proposed 132kV power line turn off to Styldrift substation project start from the existing power line where pylon structure make a bend just below the bridge, here the proposed line transverse through the natural occurring vegetation for approximately 800m towards the Styldrift mine where it connects at the substation.

9. ASSESMENT OF SITES AND FINDS

This section contains the results of the heritage site/find assessment. The phase 1 heritage scoping assessment program as required in terms of the section 38 of the National Heritage Resource Act (Act 25 of 1999) done for the proposed power line establishment project.

There are no primary or secondary effect at all that are important to scientist or the general public that will be impacted by the proposed development project.

<i>Heritage Significance:</i>	No significance
<i>Impact:</i>	Negative
<i>Impact Significance:</i>	High
<i>Certainty:</i>	Probable
<i>Duration:</i>	Permanent
<i>Mitigation:</i>	A

11. CONCLUSIONS AND RECOMMENDATIONS

The phase 1 Archaeological impacts assements for the proposed power line establishment revealed no heritage resources within the study area.

No further studies / Mitigations recommended as within the development footprint, or proposed area and its surrounding there is no archaeological or place of historical significance that will be impacted by the proposed development activities. However, should any chance archaeological or any other physical cultural resources be discovered subsurface, heritage authorities should be informed. From an archaeological and cultural heritage resources perspective, there are no objections to the proposed project and we recommend to Provincial Heritage Resources Authority to approve the project as planned.

14. TOPOGRAPHICAL MAP

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