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PHASE I ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED 958M 22KV DE-VILLIERS POWERLINE IN DOUGLAS AREA WITHIN SIYANCUMA LOCAL MUNICIPALITY IN THE NORTHERN CAPE PROVINCE

PREPARED FOR:

Eskom

Document Information

Item	Description
Proposed development and location	Proposed 958M 22KV De-Villiers powerline at Douglas in the Siyancuma Local Municipality in the Northern Cape Province
Purpose of the study	To carry out a Heritage Impact Assessment to determine the presence/absence of archaeological sites and the impact of the proposed project on any other heritage resources within the route demarcated for the proposed powerline.
1:50 000 Topographic Map	2923 BA
Coordinates	See attached Span Plan
Municipalities	Siyancuma Local Municipality
Predominant land use of surrounding area	Commercial agriculture, road , canal and powerlines
Project no.	DD232202114-DE VILLIERS-LDG05-18 HBBA127-15-15-1 to HBBA127-15-15-10
Developer/Applicant	**Miss Matlhogonolo Tshegofatso Nnene** **Eskom Distribution** **Northern Cape Operating Unit** 69 Memorial Road DSC Office Park Kimberley **8301**
Authors	Trust Mlilo and Munyadziwa Magoma (Professional Archaeologists and Heritage Specialists)
Date of Report	18/ 07/ 2018

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AUTHOURS ABILITY TO CONDUCT THE PROJECT

Trust Mlilo (MA, BA Hons, PDGE, BA (Archaeology) is a professional archaeologist and heritage specialist. He is an accredited member of the Association for Southern African Professional Archaeologists (ASAPA), Amafa akwaZulu Natali and Eastern Cape Heritage Resources Agency (ECPHRA). Mlilo has more than 15 years' experience in heritage management in Southern Africa. He has done more than hundred AIA/HIA Studies, heritage mitigation work and heritage development projects. The project covered vary from Phase 1 and Phase 2 as well as heritage nomination work for government, parastatals (Eskom) and several private companies such as BHP Billiton, Rhino Minerals.

Munyadziwa Magoma is a professional archaeologist, having obtained his BA degree in Archaeology and Anthropology at University of South Africa (UNISA), an Honours degree at the University of Venda (UNIVEN), and a Masters degree at the University of Pretoria (UP). He is an accredited Cultural Resource Management (CRM) member of the Association for southern African Professional Archaeologists (ASAPA) and Amafa aKwaZulu-Natali. Munyadziwa is further affiliated to the South African Archaeological Society (SAAS), the Society of Africanist Archaeologists (SAfA), and the International Council of Archaeozoology (ICAZ). He has more than ten years' experience in heritage management, having worked for different CRM organisations and government heritage authorities. As a CRM specialist, Munyadziwa has completed well over hundred Archaeological Impact Assessments (AIA) for developmental projects situated in several provinces of the Republic of South Africa. The AIAs projects he has been involved with are diverse, and include the establishment of major substation, upgrade and establishment of roads, establishment and extension of mines. In addition, he has also conducted Heritage Impact Assessments (HIAs) for the alteration to heritage buildings and the relocation of graves. His detailed CV is available on request.

INDEPENDENCE

The Authors of this report, Mr. T. Mlilo and Mr. M. Magoma declare that this report has been prepared independently of any influence as may be specified by all relevant department, institution and organisation. We further indicate that we had acted as independent specialist in this project and we had performed the study in an objective manner, even if this results in views and findings that are not favourable to the applicant. We also declare that there are no circumstances that may compromise our objectivity in performing this work.

EXECUTIVE SUMMARY

Diges Group was commissioned by Eskom SOC to carry out a Phase 1 Archaeological Impact Assessment for the proposed 958m 22kv De Villiers powerline, Douglas, in Siyancuma Local Municipality of the Northern Cape Province. The study was necessitated by recommendation by SAHRA (CaseID: 12462). The proposed development entails construction of a 958m 22kv powerline. The aim of the study is to identify and document archaeological sites remains and any heritage resources that may be affected by the proposed powerline development. This will in turn assist the developer and contractors to ensure proper conservation measure in line with the National Heritage Resource Act, 1999 (Act 25 of 1999). The findings of this study have been informed by desktop study and field survey along the powerline route. The desktop study was undertaken through SAHRIS for previous Cultural Heritage Impact Assessments conducted in the region of Douglas in particular, and also for archaeological studies that have been carried out in the project area over the past years.

Background and Need of the Project

According to the Span Plan for the project (DD232202114-DE VILLIERS-LDG05-18), the 958m 22kv powerline is critically required to power a pump house for irrigation currently powered by diesel engines which are more expensive to run.

Receiving Environment

The proposed development is located in an undisturbed area with two small stream crossings. Furthermore, the area is of high sensitivity in terms of archaeological resources.

Impact statement

The construction of the proposed powerline has potential to disturb archaeological remains although limited. It is important to note that all categories of heritage resource, with the possible exception of movable objects, are generally known to occur in the wider area of the proposed development. The presence of the powerline will have a moderate visual impact on pass-by motorists, and this impact will last for the lifespan of this proposed development. However, this is not addressed in this report in detail.

Restrictions and Assumptions

The investigation has been influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted immediately, and a competent heritage practitioner, SAHRA or PHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see NHRA (Act No. 25 of 1999), Section 36 (6). Recommendations contained in this document do not exempt the developer from complying with any national, provincial and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of

the NHRA. Diges Group assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.

Site-Location Model

Archaeologists who do research in the region generally accept a site-location model proposed by Maggs (1980). The model suggests that inland sites will be found in locations which bear the following:

- Limited to below an altitude of 1000 m asl;
- Situated on riverside or streamside locations, on deep alkaline colluvial soils; and
- In areas appropriate for dry-farming (with sufficient summer rainfall).

Background study

The closest town to the proposed development is Douglas, while the prehistory of this region span for over a thousand years. The history of the town of Douglas extend for over 150 years, as such the town itself is a heritage arena and bear many signature of the past.

Survey findings

The Phase I Archaeological Impact Assessment for the proposed powerline identified scatters of stone tools occurring mostly along the two streams within the project area.

Recommendations

Despite that archaeological objects were observed during the survey, the powerline development may proceed as planned subject to the following recommendations:

The client is reminded that Should any archaeological material be unearthed accidentally during the course of construction, SAHRA MUST be alerted immediately and construction activities be stopped within a radius of at least 10m of such indicator. The area should then be demarcated by a danger tape. Accordingly, a professional archaeologist should be contacted immediately. In the meantime, it is the responsibility of the Environmental officer and the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached. It is mandatory to report any incident of human remains encountered to the South African Police Services, SAHRA staff member and professional archaeologist. Any measure to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law under Section 35(4) and 36(3) of the National Heritage Resources Act, Act 25 of 1999. The developer should induct field worker about archaeology, and steps that should be taken in the case of exposing archaeological materials.

Should construction work commence for this project

- The construction team should be inducted on the significance of the possible archaeological material that may be encountered during subsurface construction work. It should be noted that it is the duty of the developer to induct field worker about archaeology, and steps that should be taken in the case of exposing materials;
- The developer should take note that, only the route demarcated for the powerline were surveyed, and that the construction team should construct within such an area. Any attempt to alter beyond the surveyed area, will be illegal, and SAHRA might take legal steps against the developer.

Conclusions

A thorough background study and survey of the proposed development route was conducted and findings were recorded in line with SAHRA guidelines. In accordance with the recommendations above, there are no major archaeological reasons why the proposed development should not be allowed to proceed. Thus, it is recommended that the proposed development proceed on condition that the recommendation indicated above are adhered to. Note that this report as well as its recommendations are void without comments from SAHRA.

Acknowledgements

The author (s) and the team of Diges Group would like to acknowledge Eskom officials, for providing project details and Mr De Villiers who was keen to walk with us along the powerline route.

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ACRONYMS AND ABBREVIATIONS

The following terms used in this Archaeology are defined in the National Heritage

AIA	Archaeological Impact Assessment
EMP	Environmental Management Plan
HIA	Heritage Impact Assessment
LIA	Late Iron Age
MIA	Middle Iron Age
EIA	Early Iron Age
HMP	Heritage Management Plan
LSA	Late Stone Age
MSA	Middle Stone Age
ESA	Early Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Authority
SAHRA	South African Heritage Resources Agency

GLOSSARY OF TERMS

The following terms used in this Archaeology are defined in the National Heritage Resources Act [NHRA], Act Nr. 25 of 1999, South African Heritage Resources Agency [SAHRA] Policies as well as the Australia ICOMOS Charter *(Burra Charter)*:

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.

Artifact: Any movable object that has been used, modified or manufactured by humans.

Conservation: All the processes of looking after a site/heritage place or landscape including maintenance, preservation, restoration, reconstruction and adaptation.

Cultural Heritage Resources: refers to physical cultural properties such as archaeological sites, palaeolontological sites, historic and prehistorical places, buildings, structures and material remains, cultural sites such as places of rituals, burial sites or graves and their associated materials, geological or natural features of cultural importance or scientific significance. This include intangible resources such religion practices, ritual ceremonies, oral histories, memories indigenous knowledge.

Cultural landscape: "the combined works of nature and man" and demonstrate "the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external".

Cultural Resources Management (CRM): the conservation of cultural heritage resources, management, and sustainable utilization and present for present and for the future generations

Cultural Significance: is the aesthetic, historical, scientific and social value for past, present and future generations.

Chance Finds: means Archaeological artefacts, 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.

Compatible use: means a use, which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

Conservation means all the processes of looking after a place so as to retain its cultural significance.

Expansion: means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.

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.

Heritage impact assessment (HIA): Refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, plan, programme or policy which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. The HIA includes recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

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

Impact: the positive or negative effects on human well-being and / or on the environment.

***In situ* material:** means material culture and surrounding deposits in their original location and context, for instance archaeological remains that have not been disturbed.

Interested and affected parties Individuals: communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by the proposal or activity and/ or who are concerned with a proposal or activity and its consequences.

Interpretation: means all the ways of presenting the cultural significance of a place.

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

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

Mitigate: The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action.

Place: means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

Protected area: means those protected areas contemplated in section 9 of the NEMPAA and the core area of a biosphere reserve and shall include their buffers.

Public participation process: A process of involving the public in order to identify issues and concerns, and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to: a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters.

Setting: means the area around a place, which may include the visual catchment.

Significance: can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgments and science-based criteria (i.e. biophysical, physical cultural, social and economic).

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

1. Introduction

At the request of Eskom, Deges Group conducted an Archaeological Impact Assessment for the proposed 958m 22kv De Villiers powerline at Douglas in Siyancuma Local Municipality of the Northern Cape Province. The survey was conducted in accordance with the SAHRA Minimum Standards for the Archaeology and Paleontology. The minimum standards clearly specify the required contents of the report of this nature.

2. Sites location and description

The proposed powerline is located at Douglas in the Siyancuma Local Municipality of the Northern Cape. The proposed area is overlooking the main road on the western section making the visibility high for cars traversing on the road. The topography of the area proposed for development is fairly flat concentrated of small shrubs typical of this region. The site photographs are shown below including the locality map.

Figure 1: View of pole where the powerline will T-off.

Figure 2: View of the general character of the proposed project area.

Figure 3: View of one of the pole position markers. Note that the survey team scanned a radius of 40m on each pole.

Figure 4: View of powerline pole position marked by a red peg.

Figure 5: View of one the few streams running across the project area. Note that stone tools occur along the streams.

Figure 6: View of stream bank where isolated stone tools where recovered during the study.

Figure 7: View of terminal position at new pump house across the canal

Figure 8: View of a solitary hand axe identified in the vicinity of the proposed powerline route.

Figure 9: View of MSA cores recovered along the stream bank in the project area.

Figure 10: Stone tools recovered along stream bank in the project area.

Figure 11: View of MSA tools recovered within the proposed project area

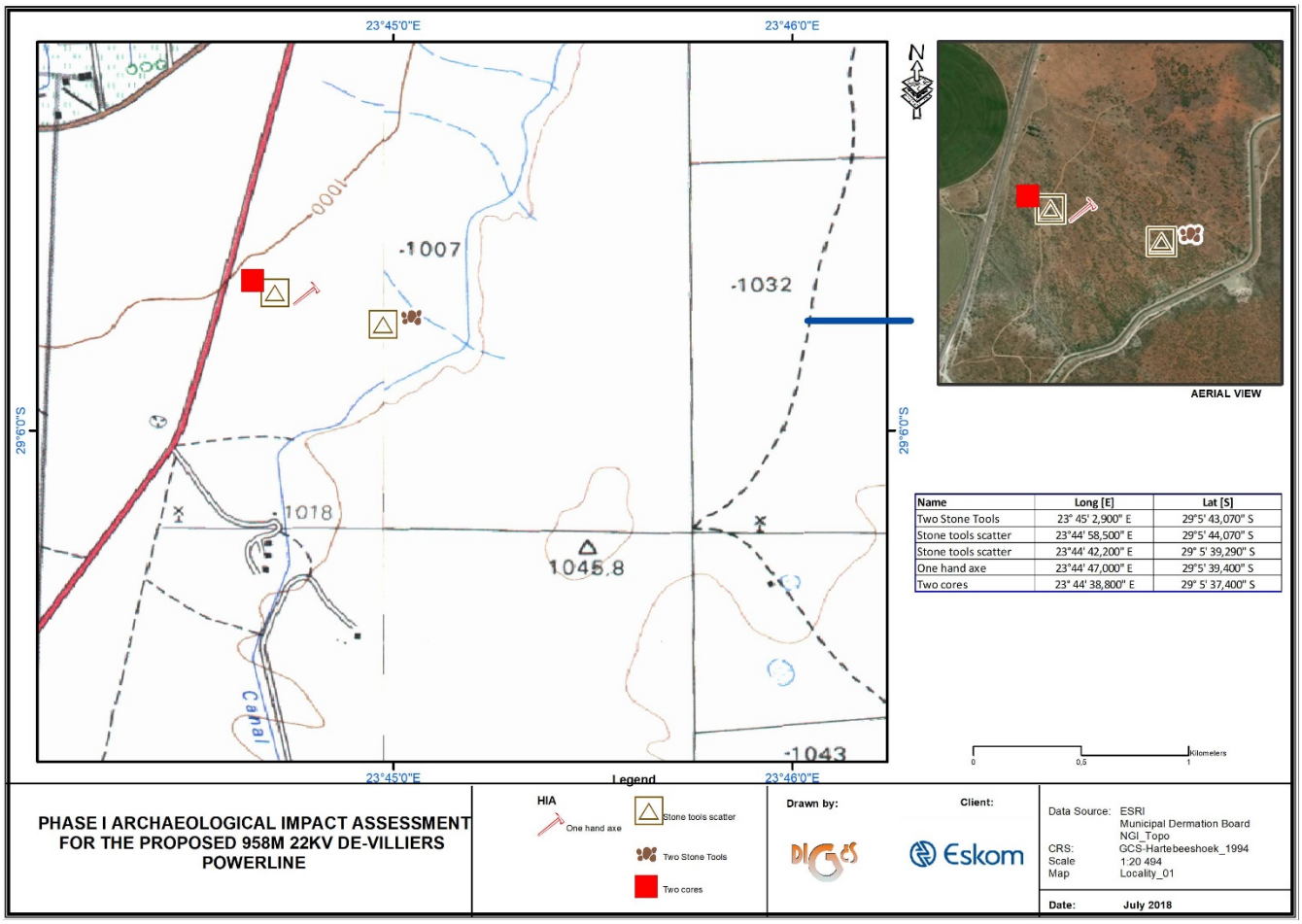

Figure 12: Locality Map

3. Nature of the proposed project (Info provided by the client)

Eskom has submitted an application in terms of section 38(1) of the National Heritage Resources Act, Act 25 of 1999 (NHRA) for a proposed 22kv powerline to be constructed near Douglas, Northern Cape Province. The proposed powerline will be 958 m long and constructed from 11 m wooden poles to provide power to Mr De Villiers's pump house.

4. Purpose of the Cultural Heritage Study

The purpose of this Phase I Archaeological Assessment is to entirely identify and document archaeological sites and any other heritage resources along the powerline route. This will in turn assist the developer and contractors to ensure in proper conservation measure in line with the National Heritage Resource Act, 1999 (Act 25 of 1999). Impact assessments highlight many issues facing sites in terms of their management, conservation, monitoring and maintenance, and the environment in and around the site. Therefore, this study involves the following:

- Identification and recording of heritage resources that maybe affected by the proposed powerline development,

- Providing recommendations on how best to appropriately safeguard identified heritage sites. Mitigation is an important aspect of any development on areas where heritage sites have been identified.

5. Methodology and Approach

5.1 Background study introduction

The methodological approach is informed by the 2012 SAHRA Policy Guidelines for impact assessment. As part of this study, the following tasks were conducted:

1) Literature review;

2) Consultations with community members;

3) Completion of a field survey; and

4) Documentations and analysis of the acquired data, leading to the production of this report.

5.1.1 Literature Review

The desktop study was undertaken through SAHRIS for previous Cultural Heritage Impact Assessments conducted in the region of the proposed development, and also for researches that have been carried out in the area over the past years, as well as historical aerial maps located in the Deeds Office. These literatures were used to screen the proposed area and to understand the baseline of heritage sensitivities.

5.1.2 Oral interview

Oral interview was initiated with Community members, this aimed to understand the cultural landscapes and/ or intangible heritage of the area.

5.1.3 Physical survey

The field survey was undertaken on the 17th of July 2018. An archaeologist from Diges Group conducted the survey. The landscape of every pylon position was explained and recorded photographically. Amongst others, the aim of the survey was to express the significance of heritage resources that may be found in the proposed area, as well as to be able to determine whether the proposed project was feasible or not, from an archaeological point of view.

5.1.4 Documentation

The general project area was documented. This documentation included taking photographs using cameras a 10.1 mega-pixel Sony Cybershort Digital Camera. Plotting of finds was done by a Garmin etrex Venture HC.

5.2 Restrictions and Assumptions

Based on the desktop studies conducted, the following archaeological and heritage resources are anticipated to occur within the proposed area:

- Stone Age material such as LSA, MSA or ESA;
- Graves and burial grounds.

6. Applicable heritage legislation

Several legislations provide the legal basis for the protection and preservation of both cultural and natural resources. These include the National Environment Management Act (No. 107 of 1998); Mineral Amendment Act (No 103 of 1993); Tourism Act (No. 72 of 1993); Cultural Institution Act (No. 119 of 1998), and the National Heritage Resources Act (Act 25 of 1999). Section 38 (1) of the National Heritage Resources Act requires that where relevant, an Impact Assessment is undertaken in case where a listed activity is triggered. Such activities include:

(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; and

(c) any development or other activity which will change the character of an area of land, or water -

- *(i) exceeding 5 000 m² in extent;*
- *(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 m2 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.

Section 3 of the National Heritage Resources Act (25 of 1999) lists a wide range of national resources protected under the act as they are deemed to be national estate. When conducting a Heritage Impact Assessment (HIA) the following heritage resources have to be identified:

(a) Places, buildings structures and equipment of cultural significance

(b) Places to which oral traditions are attached or which are associated with living heritage

(c) Historical settlements and townscapes

(d) Landscapes and natural features of cultural significance

(e) Geological sites of scientific or cultural importance

(f) Archaeological and paleontological sites

(g) Graves and burial grounds including-

- *(i) ancestral graves*
- *(ii) royal graves and graves of traditional leaders*
- *(iii) graves of victims of conflict*
- *(iv) graves of individuals designated by the Minister by notice in the Gazette*
- *(v) historical graves and cemeteries; and*
- *(vi) other human remains which are not covered by in terms of the Human Tissue Act,1983 (Act No. 65 of 1983)*

(h) Sites of significance relating to the history of slavery in South Africa

(i) moveable objects, including -

(i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens

(ii) objects to which oral traditions are attached or which are associated with living heritage

(iii) ethnographic art and objects

(iv) military objects

(v) objects of decorative or fine art

(vi) objects of scientific or technological interest; and

(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

Section 3 of the National Heritage Resources Act (No. 25 of 1999) 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 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.

Other sections of the Act with a direct relevance to the AIA are the following:

Section 34(1) *No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.*

Section 35(4) *No person may, without a permit issued by the responsible heritage resources authority:*

- *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite*

Section 36 (3) *No person may, without a permit issued by SAHRA or a provincial heritage resources authority:*

- *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 formal cemetery administered by a local authority; or*
- *bring onto or use at a burial ground or grave any excavation equipment, or any equipment which assists in detection or recovery of metals.*

7. Degree of significance

This category requires a broad, but detailed knowledge of the various disciplines that might be involved. It must be borne in mind that the significance of a site from an archaeological perspective does not necessarily depend on the size of the site but more on the uniqueness of the site within a region. The following table is used to grade heritage resources.

Table 1: Grading systems for identified heritage resources in terms of National Heritage Resources Act (Act 25 of 1999).

Level	Significance	Possible action
National (Grade I)	Site of National Value	Nominated to be declared by SAHRA
Provincial (Grade II)	Site of Provincial Value	Nominated to be declared by PHRA
Local Grade (IIIA)	Site of High Value Locally	Retained as heritage
Local Grade (IIIB)	Site of High Value Locally	Mitigated and part retained as heritage
General Protected Area A	Site of High to Medium	Mitigation necessary before destruction
General Protected Area B	Medium Value	Recording before destruction
General Protected Area C	Low Value	No action required before destruction

Significance rating of sites

(i) High (ii) Medium (iii) Low

These categories relate to the actual artefact or site in terms of its actual value as it is found today, and refers more specifically to the condition that the item is in. For example, an archaeological site may be the only one of its kind in the region, and will thus be considered to be of high regional significance, however; should there be heavy erosion of the greater part of the site, its significance rating would be medium to low. The following are guidelines for the nature of the mitigation that must take place as Phase 2 of the project.

High

- This is a 'do not touch' situation, alternative must be sought for the project, examples would be natural and cultural landscapes like the Mapungubwe Cultural Landscape World Heritage Site, or the house in which John Langalibalele resided.
- Certain sites, or features may be exceptionally important, but do not warrant leaving entirely alone. In such cases, detailed mapping of the site and all its features is imperative, as is the collection of diagnostic artefactual material on the surface of the site. Extensive excavations must be done to retrieve as much information as possible before destruction. Such excavations might cover more than half the site and would be mandatory; it would also be advisable to negotiate with the client to see what mutual agreement in writing could be reached, whereby part of the site is left for future research.

Medium

- Sites of medium significance require detailed mapping of all the features and the collection of diagnostic artefactual material from the surface of the site. A series of test trenches and test pits should be excavated to retrieve basic information before destruction.

Low

- These sites require minimum or no mitigation. Minimum mitigation recommended could be a collection of all surface materials and/ or detailed site mapping and documentation. No excavations would be considered to be necessary. -------+
-

In all the above scenarios, permits will be required from the South African Heritage Resources Agency (SAHRA) or the appropriate PHRA as per the legislation (the National Heritage Resources Act, no. 25 of 1999). Destruction of any heritage site may only take place when the appropriate heritage authority has issued a permit. The following table is used to determine rating system on the receiving environment.

Table 2: Rating and evaluating criteria of impact assessment

NATURE		
Including a brief description of the impact of the heritage parameter being assessed in the context of the project. This criterion includes a brief written statement of the heritage aspect being impacted upon by a particular action or activity.		
TOPOGRAPHICAL EXTENT		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect site.
2	Local/district	Will affect the local area or district.
3	Province/region	Will affect the entire province or region.
4	International and National	Will affect the entire country.
PROBABILITY		

This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than 75% chance of occurrence).
REVERSIBILITY		
This describes the degree to which an impact on a heritage parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures.
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES		
This describes the degree to which heritage resources will be irreplaceably lost as a result of proposed activity		
1	No loss of resource	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resource	The impact will result insignificant loss of resources.
4	Complete loss of resource	The impact is result in a complete loss of all resources.
DURATION		
This describes the duration of the impact on the heritage parameter. Duration indicates the lifetime of a result of the proposed activity.		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in span shorter than the construction phase (0-1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0-2 years).

2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2-10 years).
3	Long term	The impact and its effects will continue or last for entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter (10-50 years).
4	Permanent	The only class of the impact that will non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
CUMULATIVE EFFECT		
This describes the cumulative effect of the impacts on the heritage parameter. A cumulative effect/impact is an effect, which in itself may not be significant but may become significant if added to other existing or potential impacts emanating from similar or diverse activities as a result of the project activity in question.		
1	Negligible Cumulative Impact	The impact would result in negligible to no cumulative effects.
2	Low Cumulative Impact	The impact would result in insignificant cumulative effects
3	Medium Cumulative Impact	The impact would result in minor cumulative effects
4	High Cumulative Impact	The impact would result in significant cumulative effects.
MAGNITUDE		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.

4	Very High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapsed).Rehabilitation and remediation often impossible .If possible rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.

8. Discussion of (Pre-) History of the area around the site

Introduction

South Africa has one of the longest sequences of human development in the world. The prehistory and history of South Africa span the entire known life span of human on earth. It is thus difficult to determine exactly where to begin, a possible choice could be the development of genus *Homo* millions of years ago. South African scientists have been actively involved in the study of human origins since 1925 when Raymond Dart identified the Taung child as an infant halfway between apes and humans. Dart called the remains *Australopithecus africanus*, southern ape-man, and his work ultimately changed the focus of human evolution from Europe and Asia to Africa, and it is now widely accepted that humankind originated in Africa (Robbins *et al.* 1998). In many ways this discovery marked the birth of palaeoanthropology as a discipline. Nonetheless, the earliest form of culture known in South Africa is the Stone Age. These prehistoric periods during which humans widely used stone for tool-making, stone tools were made from a variety of different sorts of stone. For example, flint and chert were shaped for use as cutting tools and weapons, while basalt and sandstone were used for ground stone. Stone Age can be divided into Early, Middle and Late, it is argued that there are two transitional period. Noteworthy that the time frame used for Stone Age period is an approximate and differ from researcher to researcher (see Korsman & Meyer 1999, Mitchell 2002, Robbins *et al.* 1998)

Stone Age

Although a long history of research on the Early Stone Age period of southern Africa has been conducted (Mason 1962, Sampson 1974, Klein 2000, Chazan 2003), it still remains a period were little is known about. These may be due to many factors which includes, though not limited to retrieval techniques used, reliance on secondary, at times unknown sources and the fact that few fauna from this period has been analysed (Chazan 2003). According to Robbins *et al.* (1998) the Stone Age is the period in human history when stone was mainly used to produce tools. This period began approximately 2.5 million years ago and ended around 20 000 years ago. During this period, human beings became the creators of culture and was basically hunters and gatherers, this era is identified by large stone artefacts.

The Middle Stone Age possibly began around 100 000 to about 200 000 years ago and extends up to around 35 000 years ago. This period is marked by smaller tools than in ESA and characterized by the production of food and the introduction of domestication of animals. Many MSA sites have evidence for control of fire, prior to this, rock shelters and caves would have been dangerous for human habitation due

to predators. MSA people made a wide range of stone tools from both coarse- and fine-grained rock types. Sometimes the rocks used for tools were transported considerable distances, presumably in bags or other containers; as such tool assemblages from some MSA sites tend to lack some of the preliminary cores and contain predominantly finished products like flakes and retouched pieces.

Microlithic Later Stone Age period began around 35 000 and extend to the later 1800 AD. According to Deacon (1984), LSA is a period when human being refined small blade tools, conversely abandoning the prepared-core technique. Thus, refined artefacts such as convex-edge scrapers, borers and segments are associated with this period. Moreover, large quantity of art and ornaments were made during this period.

Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce artefacts. Recently, they have been a debate about the use of the name. Other archaeologists have argued that the word "Iron Age" is problematic and does not precisely explain the event of what happen in southern Africa, as such, the word farming communities has been proposed (Segobye 1998). Nonetheless, in South Africa this period can be divided into two phases. Early (200 - 1000 A.D) and Late Iron Age (1000 - 1850 A.D). Huffman (2007) has indicated that a Middle Iron Age (900 - 1300 A.D) should be included. According to Huffman (2007:361), until the 1960s and 1970s most archaeologists had not yet recognised a Middle Iron age. Instead they began the Late Iron Age at AD 1000. The Middle Iron Age (AD 900–1300) is characterised by extensive trade between the Limpopo Confluence and the East Coast of Africa. This has been debated, with other researchers, arguing that the period should be restricted to Shashe-Limpopo Confluence.

SAHRIS

The Stone Age record contains material spanning the Early, Middle and Later Stone Age periods and rock engravings are relatively common and were also recorded in the general project (Morris 2009a, 2009b, 2010, 2011 and Van Ryneveld 2007, 2008, 2009, Nilsen 2012). Acheulian and LSA collections from Douglas and Hopetown are housed in the Iziko and McGregor Museums (Beaumont 2006). Stone artefacts are made in a variety of raw materials including banded iron stone, andesite, quartzite, dolerite and hornfels, but banded ironstone is notably the most common (Beaumont 2005, 2006, 2007 & 2008 and Rossouw 2007).

Although Early Stone Age (ESA) artefacts have been recorded, these mainly consist of flakes and cores commonly based on quartzite cobbles, but formal ESA tools such as hand axes and cleavers are absent (Beaumont 2005, 2006 & 2007). An extensive surface scatter of small hand axes is supposed to occur approximately 10km upstream from Prieska (Beaumont 2007). It is possible that this is Fauresmith material, which is a transitional stone tool industry between the ESA and Middle Stone Age (MSA) (Nilsen 2012). The presence of stone artefacts representing this transitional Fauresmith industry and/or late phase of the Acheulian is frequently identified in the surrounding environment (Beaumont 2005 & 2008 and Rossouw 2007). Stone artefacts of MSA origin appear to be the most commonly occurring archaeological materials in the surrounding landscape (Beaumont 2005 & 2008, Dreyer 2005, Morris 2009, 2010, 2011, 2012, Nilsen

2012, Rossouw 2007 and Van Ryneveld 2005 & 2006). Typically, the MSA material consists of isolated stone artefacts and low density artefact scatters that include Llevallois cores, flakes and blades with faceted or prepared platforms, and the dominant formal tools are irregular scrapers (Van Ryneveld 2006). Banded iron stone is the most commonly used raw material. Although stone artefacts of Later Stone Age (LSA) origin are reported to occur in the surrounding area, these seem to be less common than specimens of MSA age (Rossouw 2007 and Van Ryneveld 2005). Overall, Stone Age materials are scattered thinly over the modern land surface and to date, the Stone Age finds are considered to be of low to no archaeological significance (Morris 2009a, 2009b, 2010, 2011, 2012). This is due to the low frequencies of occurrences, temporally mixed assemblages, and the fact that artefacts are found in disturbed, derived and unstratified contexts.

9. Survey findings

The Phase I Archaeological Impact Assessment for the proposed powerline identified sparse scatters of stone tools occurring as isolated finds mostly along streams in the vicinity of the powerline route. These included cores, scrapers, flakes and flake blades (See Figures 9, 10 &11). The study confirmed that project area has prevalence of stone artefacts scatters, mainly Middle Stone Age. However, it was observed that these artefacts occur mainly in secondary depositions sites as a result of extensive erosion over time and therefore lack context. It was further confirmed that these Stone Age tools occur in low densities. As such the artefacts were ascribed a low significance rating due to their lack of context and low densities in occurrence (see Morris 2009, 2011, 2012, Van Ryneveld 2007). The study did not recover any Late Stone Age nor Rock Engravings which are known to occur in the project area (Willem 1933, Morris 1988). Previous studies (Morris 2009, 2010, 2011, 2012, Van Ryneveld 2007) noted that significant archaeological remains occur in the lower lying parts of the Orange River rather than in the upper lying areas such as the current project area considered in this study. It is the considered opinion of the authors that the proposed minor reticulation powerline will have limited impacts on any significant archaeological remains. Archaeological resources identified during this study do not require further recording/studies since they are considered to be of low to no heritage value, and are not located on the exact pole positions. Therefore, the proposed powerline may proceed without mitigation since no significant archaeological remains were identified on the ten marked pole positions (HBBA127-15-15-1 to HBBA127-15-15-10.) proposed for construction of the pile position.

9.1 Impact Assessment

Below is the impact rating. This rating is for archaeological and cultural heritage sites known to exist in the proposed area, and includes Stone Age and historical settlements. Note that these impacts are assessed as per Table 2 above:

Table 3: Anticipated impact rating.

Description	Ratings
Impact	N/A
Nature	Negative
Topographical Extent	The impact will only affect site
Duration	Long term
Magnitude	Low
Probability	Possible
Reversibility	N/A
Irreplaceable Loss	The impact will not result in the loss of any resources.

10. Recommendations and Discussions

In compliance with the National Heritage Legislation, there was no observable development activities associated with the proposed project.

Although no significant archaeological materials were identified on the exact pole positions, the developer is reminded that unavailability of archaeological materials (e.g., pottery, stone tools, remnants of stone-walling, graves, etc) does not mean absence, archaeological material might be hidden underground, and as such, the client is reminded to take precautions during construction phases.

Pre-construction induction and awareness training

Prior to construction, the developer must ensure that contractors are given induction by an archaeologist on how to identify and protect archaeological remains that may be discovered underground during the project. The pre-construction training should include some limited site recognition training for the types of archaeological sites that may occur in the construction areas. Below are some of the indicators of archaeological site that may be found during construction:

- Flaked stone tools, bone tools and loose pieces of flaked stone;
- Ash and charcoal;
- Bones and shell fragments;
- Artefacts (e.g., beads or hearths);
- Packed stones which might be uncounted underground, and might indicate a grave or collapse stone walling.

All construction within a radius of at least 10m of such indicator should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist or SAHRA officer should be contacted immediately. In the meantime, it is the responsibility of the Environmental officer and the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached. It is mandatory to report any incident of human remains encountered to the South African Police Services, SAHRA staff member and professional archaeologist.

Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the endorsement by SAHRA or a professional archaeologist.

11. Conclusions

A thorough background study and survey of the proposed development was conducted and findings were recorded in line with SAHRA guidelines. As per the recommendations above, there are no major archaeological reasons why the proposed development cannot be allowed to proceed. Thus, it is recommended that the proposed development proceed on condition that the recommendation indicated above are adhered to. Note that this report as well as its recommendations are void without comments from SAHRA.

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http://sagns.dac.gov.za/local_authorities.asp

APPENDIX 1: SITE SIGNIFICANCE

The following guidelines for determining site *significance* were developed by SAHRA in 2003. 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.

(a) Historic value

- 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 organization of
  importance in history?
- Does it have significance relating to the history of slavery?

(b) Aesthetic value

- Is it important in exhibiting particular aesthetic characteristics valued by a community or cultural group?

(c) Scientific value

- 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?

(d) Social value

- Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons?

(e) Rarity

- Does it possess uncommon, rare or endangered aspects of natural or cultural heritage?

(f) Representivity

- Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects?
- What is the 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?
- Is it important 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?

Appendix 2: SAHRA Interim Comments

Proposed 22 kV powerline (De Villiers DG05-18)

Our Ref:

an agency of the
Department of Arts and Culture

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South African Heritage Resources Agency | 111 Harrington Street | Cape Town
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www.sahra.org.za

Enquiries: Natasha Higgitt
Tel: 021 462 4502
Email: nhiggitt@sahra.org.za
CaseID: 12462

Date: Friday June 08, 2018
Page No: 1

Interim Comment

In terms of Section 38(2), 38(3) of the National Heritage Resources Act (Act 25 of 1999)

Attention: Miss Matlhogonolo Tshegofatso Nnene
Eskom-MOU
Cnr Jellicoe & Watermeyer Street
Eskom Park
1035

Proposed 22 kV power line. Project name: De Villiers. Area, Douglas, Northern Cape, Siyancuma Local Municipality.

Eskom has submitted an application in terms of section 38(1) of the National Heritage Resources Act, Act 25 of 1999 (NHRA) for a proposed 22kv powerline to be constructed near Douglas, Northern Cape Province. The proposed powerline will be 958 m long and constructed from 11 m wooden poles to electrify seven/eight houses.

The proposed development is located in an undisturbed area with two small stream crossings. It is also located in an area of high sensitivity in terms of palaeontological resources. It is noted in the Distribution Environmental Screening Document (DESD), that palaeontological studies are going to be completed.

In a Response to NID dated 28/05/2018, SAHRA requested that the Palaeontological Study and that ground level photographs must be submitted.

The Palaeontological Study is still pending; however, ground level photographs have been submitted.

Interim Comment

After considering the submitted photographs, the SAHRA Archaeological, Palaeontological and Meteorites (APM) Unit requests that an Archaeological Impact Assessment (AIA) be conducted for the proposed line. In two of the submitted photographs (12H35 and 12h46), stone tools are evident, and therefore require an assessment.

The AIA must be conducted by a qualified archaeologist and the report must comply with section 38(3) of the NHRA and the SAHRA 2006 Minimum Standards: Archaeological and Palaeontological Component of Impact Assessments.

Proposed 22 kV powerline (De Villiers DG05-18)

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Enquiries: Natasha Higgitt
Tel: 021 462 4502
Email: nhiggitt@sahra.org.za
CaseID: 12462

Date: Friday June 08, 2018
Page No: 2

Further comments will be issued upon receipt of the requested Palaeontological Study and AIA.

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Email: nhiggitt@sahra.org.za
CaseID: 12462

Date: Friday June 08, 2018

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

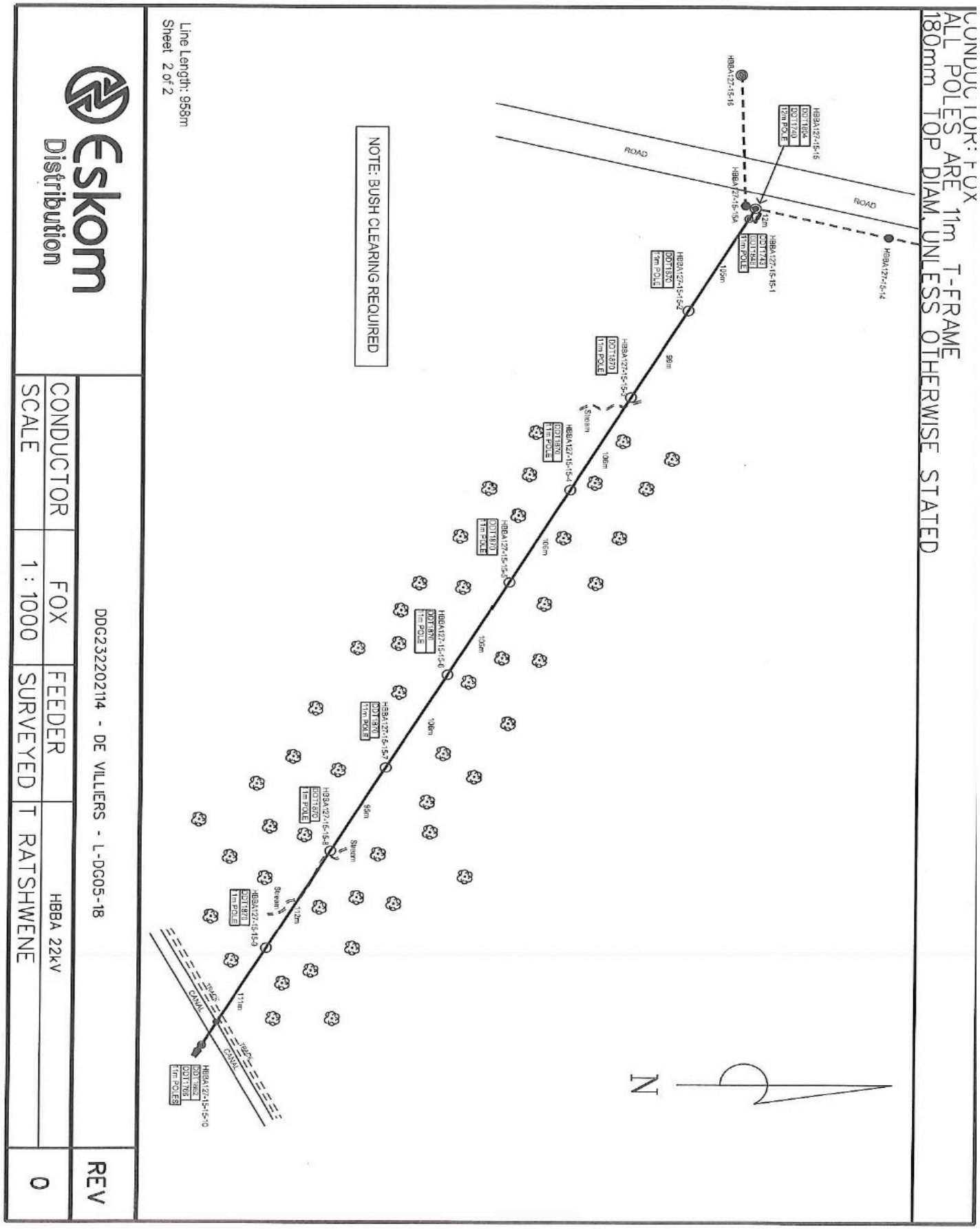
Yours faithfully

Natasha Higgitt
Heritage Officer
South African Heritage Resources Agency

Phillip Hine
Acting Manager: Archaeology, Palaeontology and Meteorites Unit
South African Heritage Resources Agency

ADMIN:
Direct URL to case: http://www.sahra.org.za/node/503852
(, Ref:)

APPENDIX 3: Project details (Span Plan)



Annex B
(informative)

Distribution Environmental Screening Document (DESD)
Reticulation Powerlines and Ancillary Services

Ratified and accepted by
Environmental Practitioner
Environmental Specialist
Head of Engineering Survey
(one signature please) .....

Accepted by **Land Owner/s/Users** Name: PIET PAPIER
I have seen the completed document
and accept the recommendations made. Signature: .....

Assessor/s

Form completed by T. Rathwewa Signature: .....
in consultation with : PIET PAPIER Signature: .....
CAPACITY (e.g. land owner, specialist): MUNICIPAL MANAGER
Date: 20/03/2018

Instructions

1. Fill the report in as neatly and completely as possible.
2. Where the question / statement is not applicable mark N/A.
3. The form must be completed in consultation with someone who knows the area well and who can also predict if any future development is envisaged (e.g. a landowner, land user, specialist, etc.).
4. Indicate sensitive areas on a map and/or spanning plans.
5. When in doubt, consult the Environmental Practitioner in your region.

The purpose of this *DESD* is to:

1. Determine whether or not the project should be subject to R1183, published in terms of the Environment Conservation Act No. 73 of 1989.
2. Identify and mitigate the negative impact of Eskom's activities to a minimum in line with both Legislation and Eskom's Environmental Policies.
3. This report is a guide to Route Selection, Construction and Field Services.

NOTE Complete the report before the survey!!!

This is not an office exercise.

Extra sheets of paper may be added and referenced if insufficient space has been provided.

Annex B
(informative)

1 Project description

Project name/Survey Request: BG05-18 De Villiers Area: Douglas

Project number: BG05-18 File number:

Rural scheme/ Feeder: HBBA Voltage: 22kv

Supply from (scheme name, pole numbers for tee-off): HBBA 127-15-15-1

Supply to (Farm name, etc.): De Villiers Farm

2 Properties traversed

Farm name: Douglas Manucipality

Registration number and Division: Sub-division:

Compilation number: Line length/Site area (m^2): 958 m

Farm name:

Registration number and Division: Sub-division:

Compilation number: Line length/Site area (m^2):

3 Brief description of the surrounding area

Manucipality area, area used For grazing. Indigenous plants and trees around. Bush cleaning will be needed. Dry Water Streams around and area is generally Flat Wetland area present but Far From where the new line will run.

Could the proposed project have an impact on or be constrained by any of the following environmental aspects?

Encircle the appropriate aspect, giving a description of the present state as well as an indication of the possible negative impact. **Note that mitigating measures for these impacts are to be included in the Environmental Management Programme.**

Annex B
(continued)

4 Physical environment

4.1 Water: (streams) rivers dams (wetlands) springs floodplains OTHER .....

Present condition: Dry Streams

Potential impact (e.g. threat of pollution): .....

4.2 Soil: (sandy) rocky (clayey) OTHER .....

Present condition: Dry

Potential impact (e.g. of erosion) .....

4.3 Topography mountains ridges hills valleys ravines dongas OTHER Gently Slopes

Present condition: Gentle Slope

Potential impact (e.g. of erosion) None

Comments/mitigating measures:

Annex B
(continued)

5 Natural environment

5.1 Flora: (Indigenous) protected exotic OTHER .....

Brief description and conservation status (e.g. rare, etc., mention trees/bush/grass) .....
Trees, bush

Potential impact (e.g. permit applications ..... Tree Cutting permit
.....

5.2 Fauna: (mammals) birds OTHER .....

Brief description and conservation status:
(e.g. rare, protected, etc., mention giraffe, elephants, eagles, vultures, etc., mention migratory paths)
Grazing Animals
.....

Potential impact (e.g. threat of electrocution, collision, etc) None
.....
.....

Comments/mitigating measures:

.....
.....
.....
.....
.....
.....
.....
.....

Annex B
(continued)

6 Social environment

6.1 Restricted areas: nature/game reserves | hiking trails | tourism routes | parks | recreational areas

residential-areas | green belts | sacred/holy grounds | OTHER Farms

Brief description There is a Farmer road leading to where the line should go.

Potential impact e.g. threat of encroachment, etc. None.

6.2 Visual aesthetics: (easily seen) | hidden | partially.....

Brief description Easily Seen.

Potential impact None

6.3 Natural heritage: cultural significance | archaeological objects | monuments | palaeontological objects

graves | meteorites | ruins | OTHER.....

Note: Should any natural heritage resource as listed above, or as defined in the National Heritage Resource Act, No 25 of 1999 be identified, the requirements of Act 25 of 1999 shall be followed by notifying the SAHRA.

Potential impact None

Comments/mitigating measures Palaeontological Studies to be done

Annex B
(continued)

7 Economic environment

7.1 Land use: crops | orchards | (grazing) | crop spraying
game farming | forestry areas | mining | OTHER .....

Brief description Animals grazing on area

Potential impact None

7.1.1 Commercial: factories | shops | OTHER Farm:

Brief description Farms around but Far From where line will run:

Potential impact None

7.1.2 Infrastructure: (roads) | railways | communications | (power lines) | air fields
pipelines | *sewage* | OTHER .....

Brief description: Existing power line next to R357 road where the new line will T-off.

Potential impact None

Comments/mitigating measures:

Annex B
(continued)

7.1.3 Impact

What impact will this project have on elements 4 to 7?

1. Physical

Low impact (0) Medium impact (2) High impact (4)

2. Natural

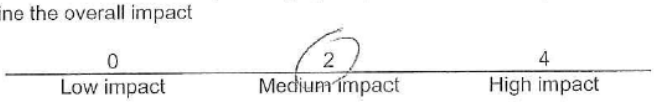
Low impact (0) Medium impact (2) High impact (4)

3. Social

Low impact (0) Medium impact (2) High impact (4)

Overall impact:

This section addresses the overall environmental impact of the project. The impacts as assessed in the above three spheres (physical, natural and social) need to be considered to determine the overall impact



If the overall impact is between 2 and 4, contact the Environmental Practitioner or specialist.

Alternatives

Have alternative routes been discussed with the relevant land owner/s or users?

Yes _____
No _____

Detailed study

Is an *environmental scoping* required in terms of Regulation 1183?

Yes _____
No _____

Should the SAHRA be notified?

Yes _____
No _____

Annex B

(continued)

Environmental Management Plan

1 General conditions

1.1 The Eskom project manager or co-ordinator shall be responsible for ensuring that the land owners have been informed before any work is carried out on site. Contractors shall find out if the landowners have been informed before moving onto site.

1.2 No fences, gates or locks shall be damaged to obtain access onto a line route. Arrangements shall be made in advance to obtain permission for access.

1.3 Use of private roads shall be arranged in advance. Any damage to private roads shall be repaired at the contractor's expense and to the satisfaction of the landowner. This shall be the responsibility of the project manager or co-ordinator.

1.4 Gates shall be left as they are found, i.e. closed gates shall be kept closed and open gates shall be left open. Gates to adjacent properties or onto public roads shall be closed at all times. Any Eskom gates installed on the line route shall be kept closed and locked except while stringing is taking place. Open gates shall be guarded to prevent animals straying and unauthorised persons and vehicles entering into adjacent camps or properties.

1.5 Permission shall be obtained from landowners before any water is used.

1.6 No fires shall be lit on private property. If fires are lit on Eskom's property or in the construction camp, provision shall be made that no accidental fires are started. No firewood shall be collected in the veld.

1.7 If activities that can cause a fire are carried out, fire extinguishers shall be available on site and in the construction camp.

1.8 No property may be accessed after normal working hours except with the permission of the landowner. Privacy shall be respected at all times.

1.9 Eskom, Eskom's contractors and their employees shall at all times be courteous towards landowners, tenants and the local community.

1.10 Eskom, Eskom's contractors and their employees shall not cause damage to property, crops or animals. Activities that may cause conflict with landowners, tenants, the local work force or the local community shall be avoided. Should conflict arise it shall be immediately reported to the Eskom project manager or co-ordiator.

1.11 Vehicles shall be driven at a moderate speed on private roads and stay within the statutory speed limit on public roads.

1.12 All movement of vehicles shall take place on the established Eskom servitude road or on private roads as agreed in advance. Keep to existing tracks. No movement shall take place through the veld. Special care shall be taken to prevent excess damage during wet weather.

Annex B
(continued)

1.13 If any vehicle should get stuck, the damage shall be repaired immediately so that no deep ruts remain.

1.14 Any damage to private property shall immediately be reported to Eskom and the owner. The damage shall be rectified immediately if possible and/or appropriate compensation shall be paid to the owner at the discretion of the project manager/co-ordinator in consultation with the property owner. A record of damages and rectifying action shall be kept. The landowner's satisfaction with the outcome of rectifying action shall be obtained in writing.

1.15 A proper system of waste management shall be instituted in the construction camp. This entails that sufficient waste bins are available on site and in the construction camp. The waste shall be dumped at an approved waste disposal site. No containers, scrap metal, conductor etc. shall be left on site.

All scrap shall be removed and taken to an appropriate disposal site. No oil, diesel or other chemicals shall be spilled or discarded anywhere. If an accidental spill occurs, it shall be reported immediately and cleaned to the satisfaction of Eskom and the landowner. No waste shall be left in the veld or on the line route.

1.16 Washing and toilet facilities shall be provided on site and in the construction camp. The facilities shall comply with Eskom standards and shall have the approval of the landowner.

1.17 No human excrement shall be left in the veld. If no toilet facilities are available such waste shall be buried *immediately*.

1.18 Herbicides shall only be applied with Eskom's permission and in accordance with the Eskom Policy on Herbicides ESKPBAAD4.

1.19 Camp and office sites shall be dismantled and removed after completion of the construction phase of the project. The site shall be rehabilitated to as close as possible to its original condition to the satisfaction of the landowner, which shall be in writing.

1.20 All excavations shall be enclosed to prevent animals or people from accidentally falling into excavations.

1.21 No trees shall be cut or removed without prior permission from the landowner. Permits shall be obtained for the cutting and removal protected trees (protected trees shall be dealt with in 2, **Special conditions**).

1.22 Should any natural heritage object be found, or exposed during excavations, all work shall be terminated immediately and the finding reported to the Project Manager who shall inform the Eskom Environmental Practitioner and the SAHRA.

2 Special conditions

(Specific issues identified during the scoping as needing attention i.e. erosion berms, bird flappers, protected trees. etc.).

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