



Nsovo Environmental Consulting

PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT REPORT FOR THE PROPOSED CONSTRUCTION OF THE 15KM 50KV POWER LINE FROM ESKOM HELIOS SUBSTATION TO THE PROPOSED NEW TRANSNET HELIOS TRACTION FEEDER SUBSTATION WITHIN THE JURISDICTION OF HANTAM LOCAL MUNICIPALITY OF NAMAKWA DISTRICT, NORTHERN CAPE PROVINCE.

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DISCLAIMER

Even though all care is taken to identify sites of heritage significance during survey, it's important to mention that the scenery of sites in southern Africa, are often contextualised such that it often is possible that certain sites could be unnoticed during the survey. Accordingly, *Vhubvo Archaeo-Heritage Consultant Cc* and its employees will not be held accountable for such oversights or for costs incurred as a result thereof.

DECLARATION

ABILITY TO CONDUCT THE PROJECT

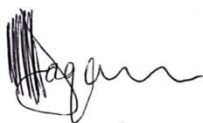
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INDEPENDENCE

I, Munyadziwa Magoma, declare that this report has been prepared independently of any influence as may be specified by all relevant department, institution and organisation.

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EXECUTIVE SUMMARY

Background and Methodology

Vhubvo Archaeo-Heritage Consultant Cc has been requested by Nsovo Environmental Consulting to conduct Archaeological Impact Assessment for the proposed 15km 50kV power line from the existing Eskom Helios Substation to the proposed new Transnet Traction Feeder Substation, which according to the demarcation board is within Hantam Local Municipality of Namakwa District in the Northern Cape Province. The aim of the survey was to identify and document archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and any structure of historical significance that may be affected by the proposed project. As part of the Transnet Orex expansion, Transnet Freight Rail (TFR) will be replacing Electrical and Diesel Locomotive with new energy efficient Electrical Locomotives. To enable TFR to expand their operations without interruption of supply, Eskom Holdings SOC Limited proposes the construction of a 5km 50kV power line from the existing Eskom Helios Substation to the proposed new Transnet Traction Feeder Substation.

The findings of this AIA have been informed by a desktop study and field survey. The desktop study was undertaken through SAHRIS for previous Heritage Impact Assessments and Archaeological Impact Assessments conducted in the region, these include work by Dewar *et al* (2006); Dewar and Jerardino (2007), Kaplan (2010), Kussel (2001), Mitchell (2002), Phillipson (1985), Inskeep (1978) Orton *et al* (2005), Van Vollenhoven (2013), Webley (2012). Also examined through engine search are reviews of relevant publications, these included publications by Beaumont and Vogel 1984, Huffman 2007. This background studies legitimate for a proper field survey, which was conducted over one day of the 03rd of September 2014.

Analysis of the archaeological, cultural heritage, environmental and historic contexts of the study area predicted that archaeological sites, cultural heritage sites, historic structures, (isolated) artefacts, historical mining and burial grounds (especially dating to the historical era) were likely to be present on the affected landscape. The field survey was conducted to test this hypothesis and verify this forecast within the proposed development area.

Results and Findings

Several archaeological sites, structures and a possible grave were noted along the area proposed for the power line.

Recommendations and conclusions

The best technique of managing archaeological resources is the preservation of the material *in situ* and declares such a sites as a “no-go” area during construction. However, if such is not feasible, Phase II

heritage mitigation can be considered as a last option. This mitigation should be in the form of detailed mapping, excavation and extensive recording of the site.

Burial sites and its contents are accorded the highest heritage accolades in South Africa, and elsewhere, principally by their relation with human being. Burial sites are often the focus of emotional and ethical sentiments to people. Dealing with human remains thus requires the highest ethical standards, Section 36 (3) of the NHRA states that, 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 a formal cemetery administered by a local authority.

As aforementioned, several archaeological sites, a structure and a possible grave were noted. The proposed project has potential to negatively impact on these, on that note, it is thus recommended that the area proposed for the power line be subjected to heritage walk down study once all the final pylon placements have been done. The walk down will focus on the individual Pylon positions to see if any pylons will negatively impact any archaeological sites, structure or a possible grave site.

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ACRONYMS AND ABBREVIATIONS

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.

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.

Cultural Heritage Resources (Same as **Heritage Resources** as defined and used in the National Heritage Resources Act, 1999 (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: means aesthetic, historic, scientific, social or spiritual value for past, present or future generations.

Cultural Significance: also encompasses 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.



Environment: The surroundings within which humans exist and that are made up of:

- i. the land, water and atmosphere of the earth;
- ii. micro-organisms, plant and animal life;
- iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and,
- iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being. This includes the economic, social, cultural, historical and political circumstances, conditions and objects that affect the existence and development of an individual, organism or group.

Environmental impact assessment: An Environmental Impact Assessment (EIA) refers to the process of identifying, predicting and assessing the potential positive and negative 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 environment. The EIA includes an evaluation of alternatives. As well as recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and environmental management and monitoring measures.

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.

Fabric: means all the physical material of the place including components, fixtures, contents and objects.

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 (contemporary) or **Burial Ground**(historic).

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

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

Use: means the functions of a place, as well as the activities and practices that may occur at the place.



1. Introduction

At the request of Nsovo Environmental Consulting, Vhubvo Archaeo-Heritage Consultant Cc conducted an Archaeological Impact Assessment (AIA) for the proposed 15km 50kV power line from the existing Eskom Helios Substation to the proposed new Transnet Traction Feeder Substation, which according to the demarcation board is within Hantam Local Municipality of Namakwa District in the Northern Cape Province. The survey was conducted in accordance with the SAHRA Minimum Standards for the Archaeology and Palaeontology. The minimum standards clearly specify the required contents of the report of this nature.

2. Sites location and description

The proposed development is located on Farm Klein Zwart Bast 188 (Portions 1, 2 and 4) within the jurisdiction of Hantam Local Municipality in the Northern Cape Province. Grass and small trees characterized the vegetation cover of the area. The proposed power line will transverse parallel the existing power line on a fairly steep section of land, while the traction feeder is proposed on a disturbed area.

Summary of Project Location Details

Province:	Northern Cape
Local Municipality:	Hantam
District Municipality:	Namakwa
Farm Names:	Aan De Karree Doorn Pan 213 (Portions 1 and 3) and Sous 226 (Portions 0, 1, 2 and 3)
Description of proposed development:	Establishment of Traction Feeder Substation



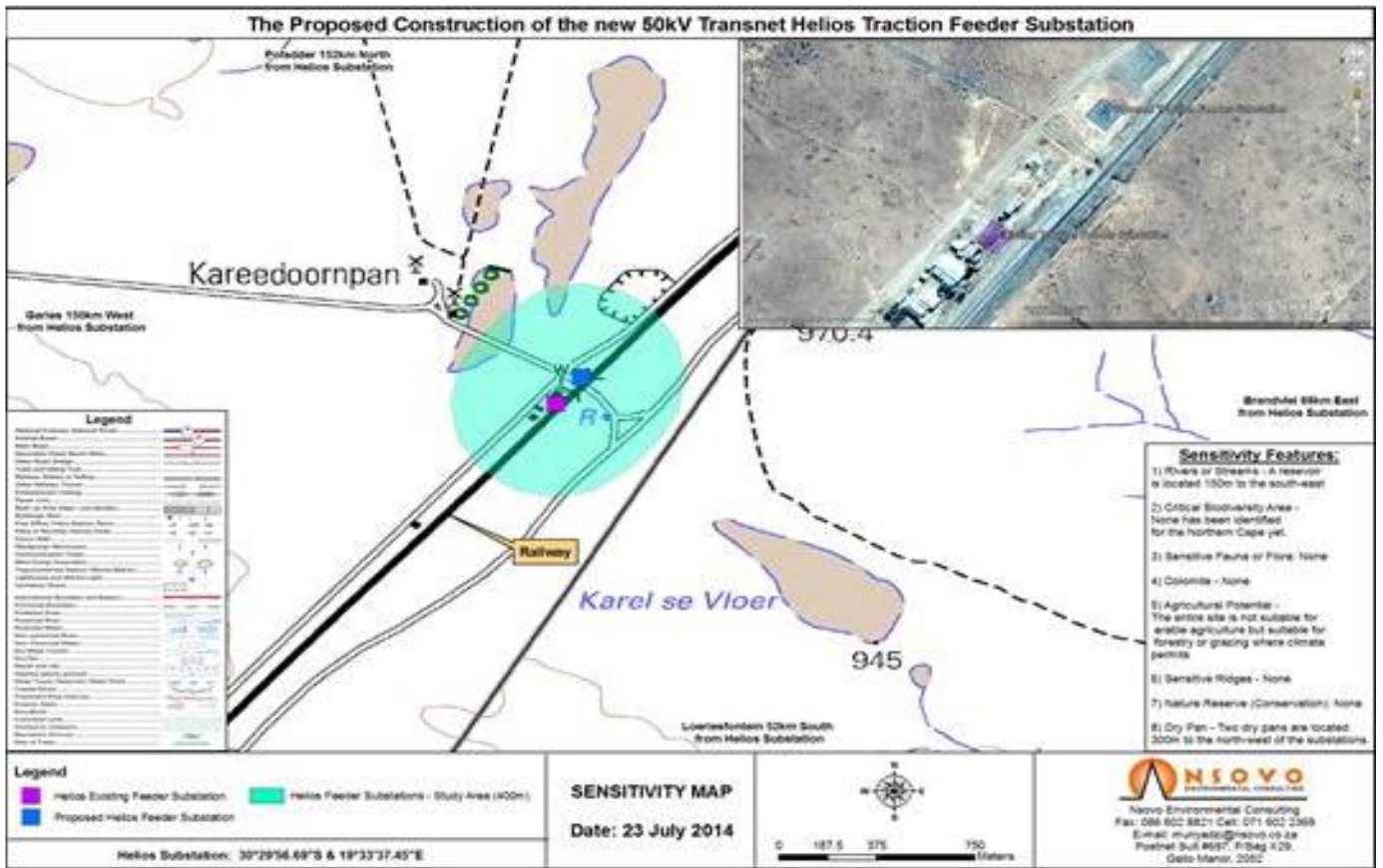


Figure 1: Topographical map detailing the proposed traction feeder development (Courtesy Nsovo Environmental).

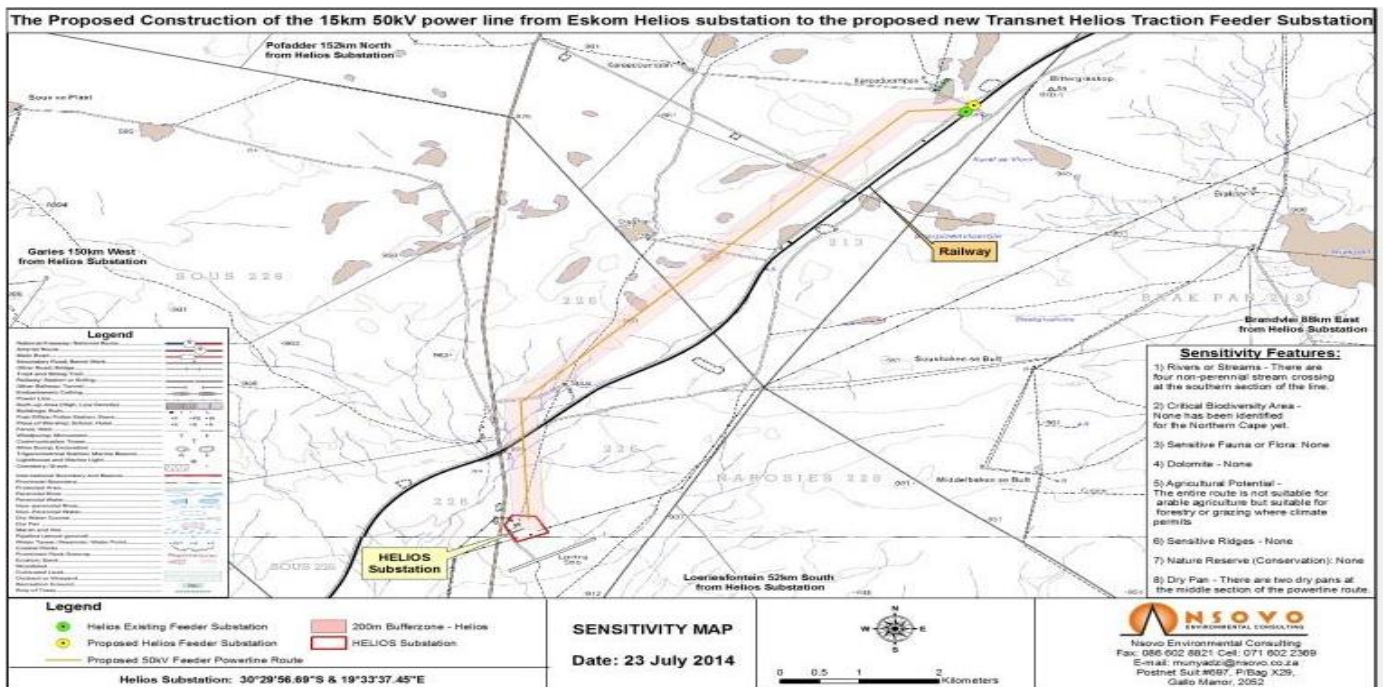


Figure 2: Topographical map detailing the proposed power-line development (Courtesy Nsovo Environmental).





Figure 3: View of the area where some of the artefacts were noted.





Figure 4: View of some of the patched area which was searched for density archaeological materials.



Figure 5: View of the proposed power line were stone artefacts were noted in abundant.





Figure 5: View of the area proposed for traction substation.

3. Nature of the proposed project

As part of the Transnet Orex expansion, Transnet Freight Rail (TFR) will be replacing Electrical and Diesel Locomotive with new energy efficient Electrical Locomotives. Consequently, to enable TFR to expand their operations without overloading and interruption of supply, Eskom Holdings SOC Limited proposes the upgrade of the Eskom Helios Substation and construction of approximately 15km 5kV of a power line from the Eskom Helios Substation to the proposed new 50kV Transnet Helios Traction Feeder Substation.

4. Purpose of the AIA study

The purpose of this Archaeological Impact Assessment (AIA) study was to conduct a heritage survey, enabling us to have an understanding of the archaeological, cultural, and general heritage sensitivity of the area proposed for establishment of traction federer and associates line. 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 AIA involves the following:

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

Desktop study and research

The methodological approach is informed by the 2012 SAHRA Policy Guidelines for impact assessment. As part of this AIA, the following tasks were conducted: 1), literature review, 2), consultations with appointed consultants, 3) completion of a field survey and 4), analysis of the acquired data, leading to the production of this report.

Physical survey

A systemic survey of the area as indicated by Burke and Smith (2004) resulted in the maximum coverage of the area. This survey was conducted by an archaeologist from Vhubvo on the 3rd of September 2014. The survey of the proposed area was surveyed on foot. The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the stream banks exposed by natural erosion forces. This is because a permit from the relevant heritage authority is required to disturb any heritage resources. In the same vein, no materials were collected.

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.

Restrictions

As with any survey, archaeological materials may be under the surface and therefore unidentifiable to the surveyor until they are exposed once development resume.

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, 1993 (Act 103 of 1993); Tourism Act, 1993 (Act 72 of 1993); Cultural Institution Act, 1998 (Act 119 of 1998), and the National Heritage Resources Act, 1999 (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, 1999 (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. Large sites, for example, may not be very important, but a small site, on the other hand, may have great significance as it is unique for the region.

Significance rating of sites

(i) High

(ii) Medium

(iii) Low

This category relates 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, thus its regional significance is high, but there is heavy erosion of the greater part of the site, therefore its significance rating would be medium to low. Generally speaking, 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 requirement of the legislation (the National Heritage Resources Act, no. 25 of 1999). Destruction of any heritage site may only take place when a permit has been issued by the appropriate heritage authority. The following table is used to grade heritage resources.

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 Value	Mitigation necessary before destruction
General Protected Area B	Medium Value	Recording before destruction
General Protected Area C	Low Value	No action required before destruction

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



8. Discussion of (Pre-) History of South Africa and areas around the development 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 period 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 and 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 where 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 200 000 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 overlap with the EIA and 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. 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.

Prehistoric rock art in Northern Cape is found in the form of both paintings and engravings. Rock paintings and engravings are generally found on cave and shelter walls in the coastal regions and in mountain ranges along Postmansburg to Danielskuil (Boshier and Beaumont 1974).

Numerous cluster of Stone Age sites have been noted near and around Kathu (Beaumont 2007; Beaumont and Morris 1990; Beaumont and Vogel 2006; Kaplan 2008; Thackeray *et al.* 1981). However, it was in 2012, when a paper published in the Journal of Science about a site in Kathu, *Kathu pan 1*, that people took notice of the significance of the area. Jayne Wilkins and Michael Chazan reveal evidence of 500 000 year-old stone points (excavated by Peter Beaumont in 1979-1982). They argued that this point represent the earliest stone-tipped spears yet found. This conclusion, based partly on experimental comparison of use wear, is taken to indicate that human ancestors used stone-tipped weapons for hunting 200 000 years earlier than previously thought. This site is approximately 30km north-west of the proposed site, and is one of the eleven sites in the Kathu Pan which were excavated by Peter Beaumont between 1978 and 1990. The pan is a shallow depression with internal drainage and high water table, covering an area of about 0.3km. most of them are filled in sinkholes that formed within calcretes of the Tertiary-aged Kalahari Group. Kathu Pan 1 preserves the longest lithostratigraphic and archaeological sequence of the sites, documenting a history of human occupation at the pan through the ESA, MSA, and LSA.

Several other sites dating to the Stone Age are known to exist around the larger geographical area of the proposed area. The most well-known of all is Wonderwerk Cave in the Kuruman Hills, this site constitutes a very large cave, extends for almost 140m into the base of a low foothill on the eastern flank of the Kuruman Hills. Wonderwerk Cave has been the subject of a number of archaeological investigations since the first published description by Malan and Wells in 1943 (Thackeray *et al.* 1981). Another site Blinkklipkop (Tsantsabane), it appears that activities at the site began 1200 B.P. Lithic artefacts, including crudely worked scrapers and miscellaneous pieces were found in the site, this site was marred by debate in the 1970 and 1980, with faunal material analysed and reanalysed, with contradictory results. Not far away from Blinkklipkop, there is another site, Doornfontein, dates to the same time range as Blinkklipkop. Results of excavations at the Blinkklipkop speculate that mining began some time before A.D. 800. The mining was probably conducted by Khoi and San people before the seventeenth century. Also, the Tswana



people appear to have utilised the area. The excavations also provide evidence for the presence of domestic animals and pottery in the Northern Cape Province by A.D. 800.

Additional Later Stone Age material and Middle Stone Age are known to exist from Lylyfeld, Demaneng, Mashwening, King, Rust and Vrede, Paling, Gloucester and Mount Huxley to the north. Rock engraving sites are known from Beeshoek and Bruce (Morris 2005). Black Rock and Gloria Mines near the town of Hotazel, revealed several sites with material dating to the Early to Later Stone Age (Kusel 2009; Pelsler and Van Vollenhoven 2011).

Iron Age and Historical Period

The Iron Age is the name given to the period of human history when metal was mainly used to produce artefacts. Recently, there 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 happened 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.

According to Schapera (1952:6) the Kgalagadi, who are believed to have originated somewhere in the vicinity of the Great-Lakes of East-Africa, were the first group of the Tswana to have encountered the San in Northern Cape and North West Province (Levitas 1983). However, Breutz (1989:1) argued that since from oral tradition it is stated that they originated from the area were “the sun stood on the other side”, it means they lived north of the equator, which would probably be southern Sudan, and not Great Lakes, which is on the Equator. Levitas (1983:168) argued that the name Kalahari was derived from the Kgalakgari people.

The Rolong and Tlhaping group of the Tswana were the next to arrive, on arrival they absorbed the Kgalagadi and San people who were found in the area (Schapera 1952). The Tlhaping were referred to as Briqua (goat people) by the Khoi people, and they ate fish which is unusual among the Bantu-speaking



people (Breutz 1989:11). Breutz (1989) and Levitas (1983) indicated that these groups arrived between 1200 and 1350. According to Maggs (1972), the area around the proposed area is associated with the Tlhaping group. Dithakong which was an important Batlhaping capital during the time of Chief Molehebangwe. The early traveller accounts refer to an impressively large town consisting of mud houses, traces of which have yet to be located archaeologically. However, stone walls dating to the Late Iron Age period has been documented. According to Maggs (1972:57), Dithakong is unique in the quality of the historical and ethnological information of the Tswana. This site appears to be the only area in which there is direct archaeological evidence for settlement in the form of stone walling.

9. Survey findings

Several archaeological sites with high significance, and dating to the Stone Age were noted along the area proposed for the power line. In fact, the entire section of the area proposed for power line is scattered by Stone Age artifacts.

Table 3: Overview of the findings and their significance.

Name of the resource	Co-ordinates	Description/Condition	Significance
Cf. Burial site	S30° 28' 09.6" E19° 34' 07.9"	This site is located in the area proposed for power line. The assemblages of these stones appear similar to that of the grave.	High if a grave
Structures (House)	S30° 28' 33.2" E19° 33' 52.4"	A depleted historical house which is in association to other structures was noted. This house is over 60 years of age.	Medium
Stone Age artefacts	S30° 29' 15.0" E19° 33' 36.7"	Scatted stone artefacts dating to the MSA/LSA	Medium-High
Stone Age artefacts	S30° 28' 53.7" E19° 33' 35.2"	Scatted stone artefacts dating to the MSA/LSA	Medium
Stone Age artefacts	S30° 28' 48.9" E19° 33' 33.2"	Scatted stone artefacts dating to the MSA/LSA	Medium
Stone Age artefacts	S30° 27' 57.7"	Scatted stone artefacts dating to	Medium



	E19° 34' 18.5"	the MSA/LSA	
Stone Age artefacts	S30° 27' 09.7" E19° 35' 01.2"	Scatted stone artefacts dating to the MSA/LSA	Medium
Stone Age artefacts	S30° 28' 09.6"	Scatted stone artefacts dating to the MSA/LSA	Medium
Stone Age artefacts	S30° 26' 38.7" E19° 35' 32.2"	Scatted stone artefacts dating to the MSA/LSA	Medium



Figure 6: View of Stone Age artefacts.



Figure 7: View of some MSA/LSA tools found scattered in the area.





Figure 8: View of structure noted in the area proposed for power line.

10. Heritage significance

The construction of power line could negatively affect sites associated with Middle/ Late Stone Age noted in the area. Below is the detailed description.

Without Mitigation	With Mitigation	
Extent	Local (2)	Local (2)
Duration	Long term (5)	Long term (5)
Magnitude	High (8)	Low (1)
Probability	Probable (3)	Improbable (1)
Significance	Low (8)	Low (8)
Status	Negative	Positive
Reversibility	Irreversible	Irreversible
Irreplaceable loss of resource	No	No
Can impacts be mitigated	No	Yes
Mitigation	Subject to heritage walk-down	
Cumulative impacts	None	
Residual impacts	Loss of heritage related information	

Table 4: Impact Assessment.



11. Recommendations

Considering that a number of the identified sites and features are of high significance and will be negatively impacted by the proposed development, it is thus recommended that the area proposed for power line be subjected to heritage walk down study once all the final pylon placements have been done. The walk down will focus on the individual Pylon positions to see if any pylons will negatively impact on any archaeological sites. It will also concentrate on servitude and access roads that will be used during construction of the proposed project.

If such recommendations measures are implemented successfully, there would be no objection to the development of the proposed project.



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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?

