Nsovo Environmental Consulting

PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT SPECIALIST STUDY REPORT FOR THE PROPOSED TUBATSE STRENGTHENING PHASE I – SENAKANGWEDI B INTEGRATION PROJECT IN STEELPOORT AREA OF GREATER-TUBATSE LOCAL MUNICIPALITY WITHIN SEKHUKHUNE DISTRICT. LIMPOPO PROVINCE.

March, 2014

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DECLARATION

ABILITY TO CONDUCT THE PROJECT

MunyadziwaMagoma 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 currently completing his MA 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 seven 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 (AIAs) 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

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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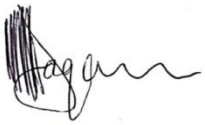

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EXECUTIVE SUMMARY

Eskom Holding Limited proposes to construct a new substation and powerline, the new substation to be referred to as Senakangwedi B substation (i.e., 1 x 800MVA, 400/275kV and 2X500, 400/132kV) and loop in/ loop out lines, as well as feeder bays lines are to be located in the region of Steelpoort. Nsovo Environmental Consulting, as an independent environmental firm was thus appointed by Eskom Holding Limited to conduct the environmental studies. As a component of such studies, an Archaeological Impact Assessment (AIA) was necessary. On that note, Vhubvo Archaeo-Heritage Consultant, also an independent firm was requested by Nsovo Environmental Consultant to furnish an AIA. The main aim of the AIA was to identify and document archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and any structures of historical significance that may be affected by the proposed establishment of substation and powerlines. As aforementioned, the proposed project is located within the Magisterial District of Steelpoort. The name Steelpoort has its history in the area, according to unconfirmed source, a group of Voortrekkers from Natal shot an elephant at dusk, and on returning the next morning they found that the tusks had been stolen. The river flowing through the poort was then called Steelpoort River ('steel' meaning steal in Afrikaans), initially the river is referred to as Tubatse River. The region is affluent of archaeological material dating from the Early Stone Age, Iron Age up to and including the historical period. The Pre-historic and historical remains that have been noted in the area by other archaeological studies represent the heritage of most groups living in South Africa today.

The area also possesses a geological site, Dwars River site, this site which has been declared a National site, and has potential to be a World Heritage site is in close proximity to the proposed development. In fact, the proposed development is within a radius of 500 metres. The site dates about 2 060 million years ago, the noted 'zebra-striped rocks' were part of a pool of molten rock or magma. This magma dissolves to form a Bushveld complex which stretches from the site to Rustenburg in the North West province. This makes it the largest layered instrusion in the world, and contains over half of the world's chromium, platinum group metals and vanadium reserves. The outcrop of the black layers make this one of the geological wonders of the world, hence it has been declared a National Monument.

The findings of this AIA have been informed by desktop study and field survey. The desktop study was undertaken through SAHRIS for previous Heritage Impact Assessments and Archaeological Impact Assessments from the region, these include work by Coetzee 2009; Huffman and Schoeman 2003; Magoma 2012; Murimbika 2005; Pistorius 2013; Van Schalkwyk 2007, etc. Also examined are reviews of relevant publications and the University of Pretoria's Library. From the collection at the University and publications review, it became clear that intensive archaeological work has been done in the region by Coertze 1983; Fourie 1999; Nelson 2009; Smith 1969, etc. The background studies legitimate for a

proper field survey. The field survey lasted two days of the 23rd of January and 27th of March 2014. One archaeologist from Vhubvo accompanied by environmentalist practitioners from Eskom and Nsovo conducted the survey.

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 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 footprint. The proposed site is about 20 kilometres south-west of the town of Steelpoort. The survey concentrated on the area proposed for development, these constitute the area proposed for substation and respective powerlines. During desktop study, it was clear that the area proposed for development possesses a cultural landscape dotted with pre-historical and historical materials. Most section of the proposed area for powerlines appears disturbed. However, the exact locale of the powerline was not surveyed satisfactory due to in part to inaccessibility of other section of the line, as well as bush encroachment.

For the purpose of the Senakangwedi B substation, three potential sites were identified as being technically feasible. These are referred to as Sites 1, 2 and 3. From the three identified sites, one will be utilised. As such, this AIA study will choose the most ideal.

Description, Findings and Recommendations

The proposed project is referred to as Tubatse Strengthening Phase 1 – Senakangwedi B Integration and consists of the establishment of the new Senakangwedi B substation (1 x 800MVA, 400/275kV and 2X500, 400/132kV) with the following associated components.

- A Loop in and out of Senakangwedi B connecting the existing Arnot – Merensky 400kV line.
- The construction of the Tubatse – Senakangwedi B 400kV line.
- The construction of the Senakangwedi – Senakangwedi B 275kV line.
- 4 x 132kV feeder bays.
- 2 x 275kV feeder bays (Senakangwedi and Senakangwedi B).
- 3 x 400kV feeder bays.

Three alternatives for substation have been identified (see figure 4) and these will be further discussed below. Later Iron Age group inhabited the area proposed for Senakangwedi B substation from around A.D 1600. Their presence in the area is marked by broken ceramics and stone walled villages. Stone walled sites are concentrated on Site B. These stone wall sites date to the Late Iron Age, and are mostly associated with small mountains, where dolerites were used in their construction. They are usually clustered along the lower foot slopes. These were probably grouped together to form villages which covered large areas.

An American geologist, Edward Sampson, who visited South Africa in 1929, was the first person to call attention to the importance of the Dwars river outcrop. It has since become world-famous among geologists who frequent the place, and has now been declared a National site. The South African palaeontological record gives us insight in the origin of life, dinosaurs and humans. These fossils are also used to identify rock strata and determine the geological context of the subregion with other continents and to study evolutionary relationships, sedimentary processes and palaeoenvironments. **Therefore it is recommended that a Paleontological Impact Assessment (PIA) be conducted before any construction activities began.** This assessment will determine whether any of the proposed substation/ and or powerline is located on the Bushveld complex or not, and also to suggest recommendation measures on that regard.

- **Site No. 1**

This proposed area (see figure 5) is fairly flat and encroached by vegetation. In addition, part of this site was not successfully surveyed as is located in the corridor of the existing mine. Iron Age people preferred the rich alluvial soils close to rivers to settle on (Huffman 2007). As such, considering that this proposed site is located 600 metres from the river, and it was not surveyed satisfactory, **it is recommended that an archaeologist conduct a walk-down survey of the particular area**. Such walk-down survey should be done before commencement of any construction activities. The walk-down will ensure that no chance archaeological/ and or graves are compromised/ or disturbed by such a proposal.

- **Site No. 2**

Access roads and path ways cut across this proposed site (see figure 6) which is fairly steep, and concentrated of small shrubs. Section of the proposed area has been bulldozed, such clearing has caused a significant damage to the noted archaeological sites. The disturbance has further been instigated by sample points, probably conducted for prospecting of minerals. Archaeological stone walled sites were noted in this proposed area. These sites date to the Late Iron Age, and are the results of Iron Age groups. Consequently, these sites and clusters of sites have high significance and are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). Three recommendations are made if this site is going to be utilised: (1) **Detailed mapping**, (2) **extensive recording of the structures**, and (3) **destruction permit**. It should be noted that these recommendations are subject to a permit application. The permit would authorise the destruction of these remnants.

- **Site No. 3**

This proposed area is fairly flat (see figure 7), and encroached by vegetation which have regenerate after recent good rains. This vegetation has made visibility difficult to some extent, and consequently compromised the survey. As such, it is recommended that an archaeologist is assigned during bush clearing to further assess the area. This will ensure that no graves or chance archaeological materials are disturbed, if any. Nevertheless, no sites of heritage significance were identified on the footprint during

the survey. On that note, **this alternative is the most preferred by this study**. In addition, this site is reasonably far from any known sites in the area.

- **Powerlines**

Most of this section is heavily disturbed by activities related to past land use, such as existing power lines. Also, access roads, village streets, path ways, coupled by main road run across or adjacent to this area. Other section of this site could not be assessed because of inaccessibility, while other are cordoned off for nature reserve purposes. The famous Dwars river heritage site is situated between the loop in and loop out lines associated with Alternative Sub. 1. These lines are in close proximity (approximately 200 metres) to instigate a direct or indirect impact to the national heritage site. However, this report will await the paleontological impact assessment (PIA) recommendations before making any suggestions in regard to the site, conversely this AIA will abide by recommendations from the PIA. Considering that the area around Steelpoort possesses material dating to the Stone Age and that most of the area proposed for the line was not surveyed adequately, **it is recommended that the area proposed for the powerline be walked down by an archaeologist**. This walk-down survey should be done before commencement of any construction activities, but after the decision of the exact area of the powerlines have been established.

Conclusions:

A thorough background study and survey of the proposed development was conducted and findings were recorded in line with SAHRA guidelines. The study revealed that the project area is located within a cultural landscape dotted with cultural and natural heritage resources. As per the recommendations above, there are no reasons why the planning of the project could not be allowed to proceed. Therefore, the proposed development can proceed on condition that the recommendation stated above are adhered to.

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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,Act No. 25 of 1999): Refer to physical cultural properties such as archaeological and palaeolontological 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 Tubatse Strengthening Phase 1 – Senakangwedi B Integration Project in Limpopo Province. This proposed development is in the region of Steelpoort within Greater-Tubatse Local Municipality of Sekhukhune District, Limpopo 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 in the region of Steelpoort, about 3km northeast of the town of Steelpoort in the Local Municipality of Greater-Tubatse, Ward 31. Limpopo Province. In addition, most of the proposed area is located along the main road, R555. The area is vacant of any activities and is concentrated by grass and shrubs. The topography is varied, from flat to fairly steep to undulating. To get an overview of some of the area, please see figures 5 - 7. Below are the geographical co-ordinates of the location of the proposed area for substations and powelines.

Project components	Co-ordinates	
	Latitude	Longitude
Alternative Substation 1	24°55'06.32"S	30° 6'36.40"E
Tubatse Loop in Line	24°55'00.21"S	30° 6'39.57"E
Tubatse Loop out Line	24°53'54.35"S	30° 4'08.12"E
Senakangwedi Loop in Line	24°54'38.92"S	30° 6'21.22"E
Senakangwedi Loop out Line	24°55'15.19"S	30° 6'16.47"E
Alternative Substation 2	24°53'45.91"S	30° 4'39.73"E
Tubatse Loop in Line	24°53'32.58"S	30° 03'9.12"E
Tubatse Loop out Line	24°53'34.57"S	30° 3'11.64"E
Tubatse Alternative Loop in Line	24°53'32.58"S	30° 03'9.12"E
Tubatse Alternative Loop out Line	24°53'32.58"S	30° 03'9.12"E
Senakangwedi Loop in Line	24°53'22.81"S	30° 5'35.10"E
Senakangwedi Loop out Line	24°54'11.42"S	30° 5'27.25"E
Senakangwedi Line	24°50'39.13"S	30° 6'30.07"E
Alternative Substation 3	24°52'50.55"S	30° 8'50.41"E
Senakangwedi Loop in Line	24°52'03.67"S	30° 7'55.03"E
Senakangwedi Loop out Line	24°53'03.65"S	30° 7'35.27"E
Tubatse Loop in Line	24°53'03.65"S	30° 7'35.27"E
Tubatse Loop out Line	24°53'03.65"S	30° 7'35.27"E
Senakangwedi Line	24°52'49.50"S	30° 08'6.08"E
Senakangwedi Alternative Line	24°52'03.67"S	30° 7'55.03"E

Summary of Project Location Details

Province:	Limpopo
Local Municipality:	Greater Tubatse
District Municipality:	Sekhukhune
Extent:	--
Farm Names:	--
Description of proposed development:	Establishment of substation and powerline

Figure 1: An overview of proposed substation 1.

Figure 2: View of the area proposed for alternative number 2.

Figure 3: View of the area proposed for alternative number 3.

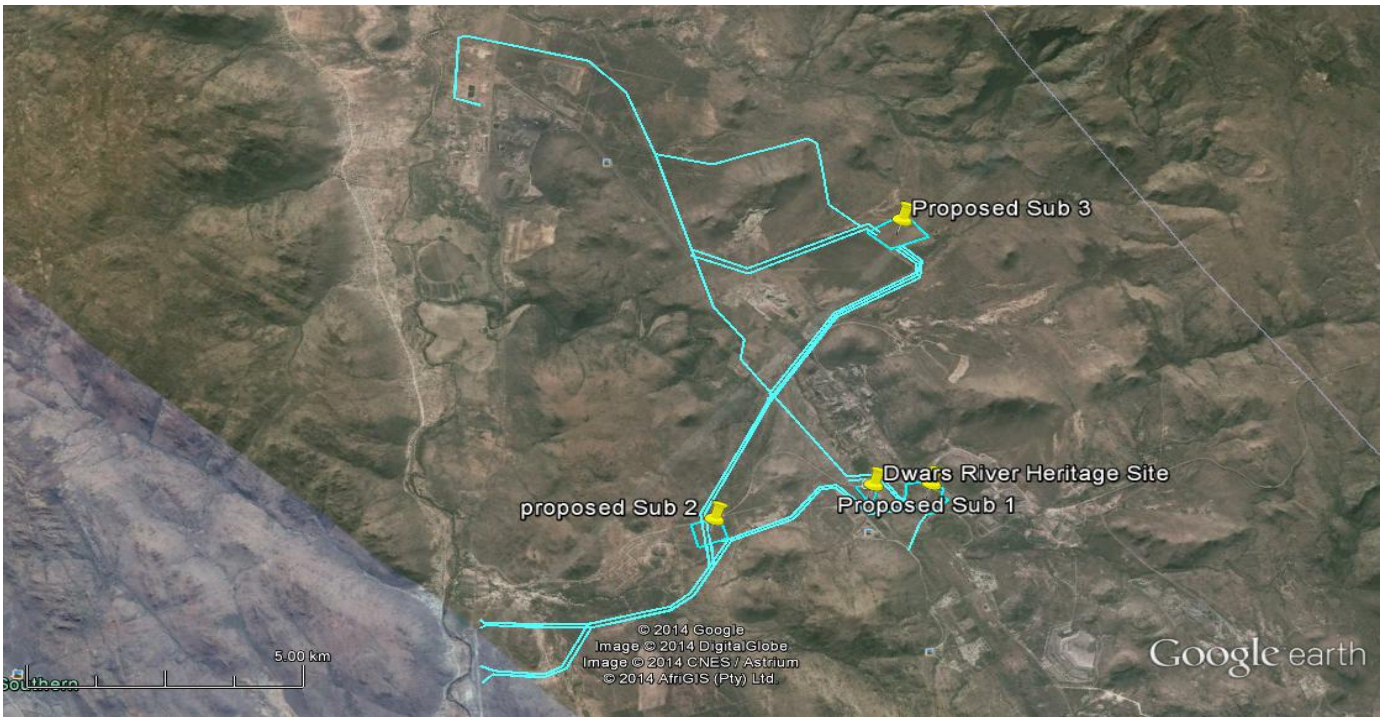

Figure 4: An overview of the Tubatse Strengthening Phase 1 – Senakangwedi B Integration Project.

Figure 5: View of the area proposed for alternative number 1: Substation.

Figure 6: View of the area proposed for alternative number 2: Substation.

Figure 7: View of the area proposed for substation from the south.

3. Nature of the proposed project

The project is the Tubatse Strengthening Phase 1 – Senakangwedi B Integration and consists of the establishment of the new Senakangwedi B substation (1 x 800MVA, 400/275kV and 2X500, 400/132kV) to the south of existing Senakangwedi substation with the following associated components.

- A Loop in and out of Senakangwedi B connecting the existing Arnot – Merensky 400kV line.
- The construction of the Tubatse – Senakangwedi B 400kV line.
- The construction of the Senakangwedi – Senakangwedi B 275kV line.
- 4 x 132kV feeder bays.
- 2 x 275kV feeder bays (Senakangwedi and Senakangwedi B).
- 3 x 400kV feeder bays.

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 substation 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

Background study introduction

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 the developer and appointed consultants, 3) completion of a field survey and 4) analysis of the acquired data, leading to the production of this report.

To understand the archaeology of the proposed area, a background study was undertaken and relevant institutions were consulted. These studies entailed the review of archaeological and heritage impact assessment studies that have been conducted around the proposed area thorough SAHRIS. In addition,

other knowledge distributors were considered, for example, published research articles, etc. These investigations were fundamental in shading light about the archaeology of the proposed area.

Physical survey

The field survey was conducted on the 23rd of January and 27th of March 2014. 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 one Vhubvo archaeologist. The survey of the area proposed for the new substation was conducted on foot, while the powerline was surveyed on foot and also by car were situation permits. 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.

Oral interview

Oral interview was not possible.

Restrictions

As with any archaeological survey, materials may be under the surface and therefore unidentifiable 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 (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. 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 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	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 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 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. Consequently, refined artefacts such as convex-edge scrapers, borers and segments are associated with this period. Large quantity of art and ornaments were also made during this period. The existence of Stone Age people occupation in the Steelpoort area is confirmed by the occurrence of stone tools dating from the Early, Middle and Late Stone Age. Most of these finds are classified as isolated tools (see for example Huffman and Schoeman 2003; Murimbika 2005; Pistorius 2005, 2013), and are argued to be of low significance.

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, they have been a debate about the use of the name. Other archaeologist 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.

Before the arrival of Europeans, the area was the home to Bantu-speaking peoples such as the Sotho-Tswana. White settlers were largely self-sufficient, relying on cattle/sheep farming and also hunting. Few towns were established and farming remains the most dominant economy. It is not clear when did Iron Age people first arrived in the area, however it is thought that they first moved into the area around by AD 400 – AD 700. Such assumption is based on sites that have been found in the Steelpoort River valley dating to the Early Iron Age and belong to the Doornkop phase of the Early Iron Age, dating AD 600 – AD 900. Most of these sites are located on flat plateaus close to the Steelpoort River. It is possible that after this Phase, the

Eiland Phase dating AD 1000 could have followed. And finally the Pedi, and also the Swazi/ Ndebele groups could have been next.

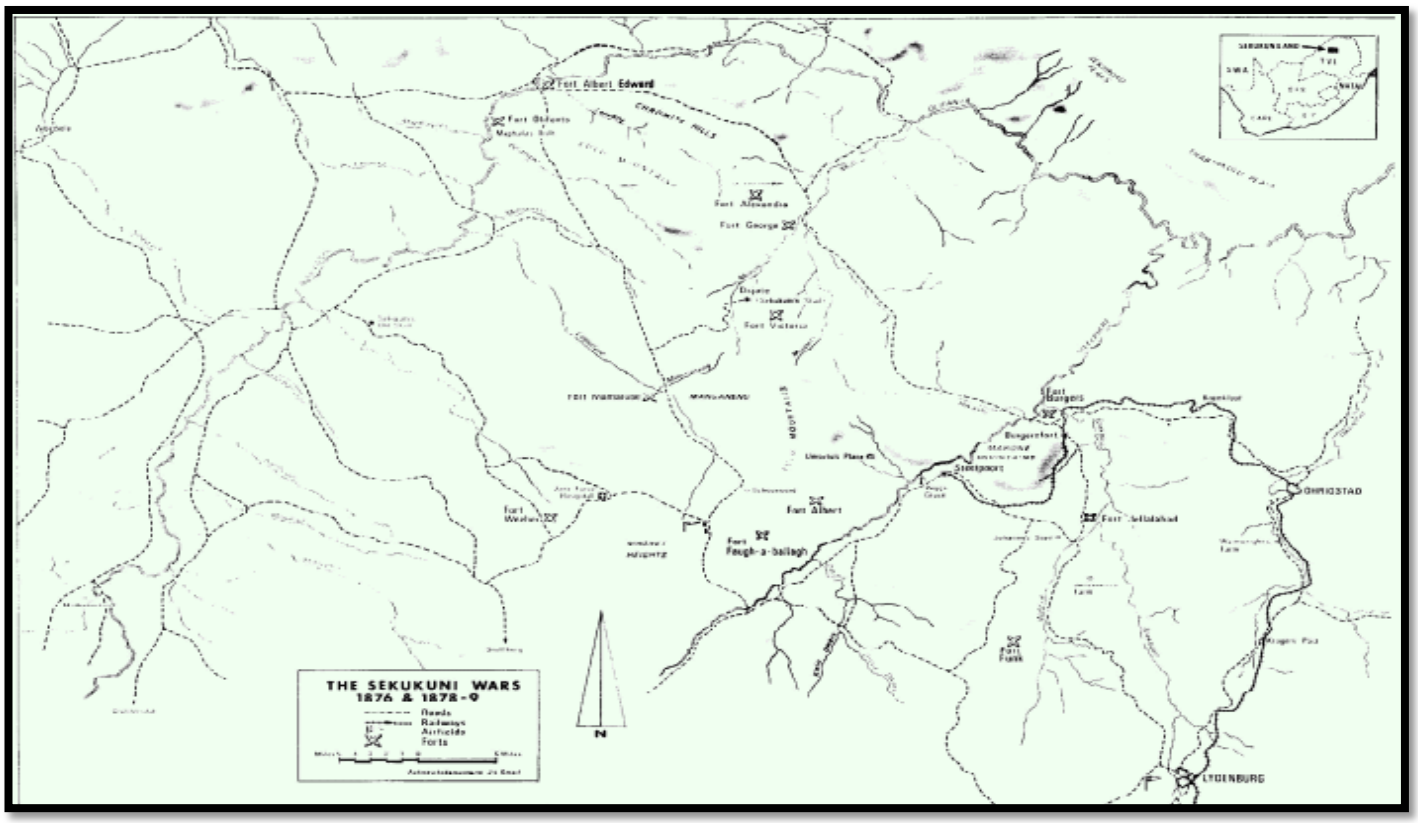

Figure 8: View of the map detailing the area where Sekhukhune wars took place (courtesy Military History Journal, 1973).

According to oral tradition, Sotho people migrated from Central Africa, the Hurutshe group which is part of the Sotho groups and on which it is acceptable that Pedi originated arrived in part of this South Africa around the 16th century. In the late 1600 the Bapedi settled south of Steelpoort station. Sekwati, the Pedi chief established himself at Phiring, during that era, Voortrekkers under Louis Trichardt and Hendrik Potgieter in 1845 and 1853 pass through the Pedi people, such was followed by land encroachment and stock theft which resulted in tension between Pedi and Afrikaners. As a result, Sekwati decided to move from Phiring to Thaba Mosega in 1853. This movement was followed by peaceful agreement which was consented in 1857 between the two groups, and made Steelpoort River the boundary. When Sekwati died, he was succeeded by a vicious Sekhukhune, his son who became the chief by force, and subjugated his half brother Mampuru who was the rightful heir. The discovery of gold in the region in 1871 and failure to mine in 1875 led President Burgers to conclude that Pedi were obstructing progress. 1876 marked the beginning of the first war between Pedi and Afrikaners. Nonetheless, in 1877 Transvaal was seized by Britain, and the Pedi along with other groups were considered British's subject, and payment amounting to 2000 cattle was

needed. However, Sekhukhune's refusal to pay such an amount resulted in conflicting views. War was then declared on the Pedi by the British who were supported by the Swazi, and Sekhukhune eventually surrendered on the 2nd of December 1879 and was thus imprisoned in Pretoria. His surrender resulted in killing of all his sons, and Maphuru who was previously defeated and had to flee, was annex as the chief of the Pedi. On the 28th November 1879 Sekhukhune was captured and Pedi defeated. Sekhukhune was released from jail in 1881 and returned to the Pedi. However, in 1882 he was killed on Mampuru's orders. Mampuru also had conflict with the Afrikaners' and had to flee the area.

9. Findings, discussion and recommendations

Introduction

As previously mentioned, the intention is for the proposed establishment of Tubatse Strengthening Phase 1 – Senakangwedi B Integration Project within Greater-Tubatse Local Municipality of Sekhukhune District of Limpopo Province. The proposed development will significantly and permanently alter the landscape. Hence this study was aimed at ensuring that no archaeological and other heritage resources are negatively affected. Few sites have been recorded during the fieldwork and are discussed below in relation to where there were acknowledged.

- **Site No. 1**

This proposed area (see figure 5) is fairly flat and encroached by vegetation. In addition, part of this site was not successfully surveyed as is located in the corridor of the existing mine. Iron Age people preferred the rich alluvial soils close to rivers to settle on (Huffman 2007). As such, considering that this proposed site is located 600 metres from the river, and it was not surveyed satisfactory, **it is recommended that an archaeologist conduct a walk-down survey of the particular area**. Such walk-down survey should be done before commencement of any construction activities. The walk-down will ensure that no chance archaeological/ and or graves are compromised/ or disturbed by such a proposal.

- **Site No. 2**

Access roads and path ways cut across this proposed site (see figure 6) which is fairly steep, and concentrated of small shrubs. Section of the proposed area has been bulldozed, such clearing has caused a significant damage to the noted archaeological sites. The disturbance has further been instigated by sample points, probably conducted for prospecting of minerals. Archaeological stone walled sites were noted in this proposed area. These sites date to the Late Iron Age, and are the results of Iron Age groups. Consequently, these sites and clusters of sites have high significance and are protected by Section 35 of the

National Heritage Resources Act (No 25 of 1999). Three recommendations are made if this site is going to be utilised: (1) **Detailed mapping**, (2) **extensive recording of the structures**, and (3) **destruction permit**. It should be noted that these recommendations are subject to a permit application. The permit would authorise the destruction of these remnants.

Site Name	Two Late Iron Age Enclosures
Coordinates	A: S 24° 53' 40.2"; E 30° 04' 39.5" B: S 24° 53' 39.5"; E 30° 04' 39.0"
Description	Two Later Iron Age site were noted on the area proposed for substation: Alternative 2. These collapsed animal enclosures extend for 20 metres and 15 metres respectively. It is possible that these enclosures are part of a bigger site in the area. However, it is difficult to evaluate them in isolation, a proper investigation can elucidate their context in relation to other known in the region.
Significance	High to Medium (A)
Recommended mitigation measures	Three recommendations are made if this site is going to be utilised: (1) Detailed mapping, (2) extensive recording of the structures, and (3) destruction permit.

Figure 9: View of the Late Iron Age structure which extends for about 15 metres by 10 metres.

Figure 10: The second Late Iron Age site, this site is approximately 20 metres by 5 metres.

Site Name	Pile of stones
Coordinates	S 24°53'39.1"; E 30°04'35.2"
Description	An overview of pile of stone on an exposed granite (figure 10), and an assemblages of stones which might be terracing (figure 11), this assemblage is bigger than that which may be associated with a grave. At this point is not clear whether this is related to recent activities or historic assemblages.
Significance	Medium value (C)
Recommended mitigation measures	Two recommendations are made here: (1) Detailed mapping, and (2) Destruction permit.

Figure 11: View of an elongated stones. This stones extends for about 2 metres.

Figure 12: View of terracing.

- **Site No. 3**

This proposed area is fairly flat (see figure 7), and encroached by vegetation which have regenerate after recent good rains. This vegetation has made visibility difficult to some extent, and consequently compromised the survey. As such, it is recommended that an archaeologist is assigned during bush clearing to further assess the area. This will ensure that no graves or chance archaeological materials are disturbed, if any. Nevertheless, no sites of heritage significance were identified on the footprint during the survey. On that note, **this alternative is the most preferred by this study**. In addition, this site is reasonably far from any known sites in the area.

- **Powerlines**

Most of this section is heavily disturbed by activities related to past land use, such as existing power lines. Also, access roads, village streets, path ways, coupled by main road run across or adjacent to this area. Other section of this site could not be assessed because of inaccessibility, while other are cordoned off for nature reserve purposes. The famous Dwars river heritage site is situated between the loop in and loop out lines associated with Alternative Sub. 1. These lines are in close proximity (approximately 200 metres) to instigate a direct or indirect impact to the national heritage site. However, this report will await the paleontological impact assessment (PIA) recommendations before making any suggestions in regard to the site, conversely this AIA will abide by recommendations from the PIA. Considering that the area around Steelpoort possesses material dating to the Stone Age and that most of the area proposed for the line was not surveyed adequately, **it is recommended that the area proposed for the powerline be walked down by an archaeologist**. This walk-down survey should be done before commencement of any construction activities, but after the decision of the exact area of the powerlines have been established.

10. Conclusions

A thorough background study and survey of the proposed development was conducted and findings were recorded in line with SAHRA guidelines. The study revealed that the project area is located within a cultural landscape dotted with cultural and natural heritage resources. As per the recommendations above, there are no reasons why the planning of the project could not be allowed to proceed. Therefore, the proposed development can proceed on condition that the recommendation stated above are adhered to.

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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?

APPENDIX 2: GRAVE

A grave is a place of interment and includes all that is associated with such a place, and should be avoided by all means possible unless when totally impossible. If accidental found during construction, the constructor should immediately halt construction and notify SAHRA, the nearest Police Station and a Museum (preferably where there is an Archaeologist), or an independent Archaeologist, so that the discovery can be speedily investigated and facilitated. In the meantime a buffer of about ten meters from the grave should be maintained, and if the grave is to be relocated, the correct procedure which involve, notification, consultation and permit application should be followed. If the grave is less than 60 years of age, it is subject to provision of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the ordinance on excavations (ordinance no. 12 of 1980) (replacing the old Transvaal Ordinance no. 7 of 1925). Permission must also be sought from the descendent (where known), the national department of health, provincial department of health, premier of the province and local police. Furthermore permission must also be sought from the landowners before exhumation can take place. Human remains can only be handled by a registered undertaker or an institution declared under the human tissues act (Act 65 of 1983 as amended). This act states that a survey and an evaluation of cultural resources should be undertaken in areas where development, which will change the face of the environment, is to be made.