Heritage scoping report for THE PROPOSED MAJUBA CCGT POWER PLANT, AMERSFOORT MAGISTERIAL DISTRICT, MPUMALANGA

## THE PROJECT:

Development of power generation facilities.

#### THIS REPORT:

HERITAGE SCOPING REPORT FOR THE PROPOSED MAJUBA CCGT POWER PLANT, AMERSFOORT MAGISTERIAL DISTRICT, MPUMALANGA

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## **EXECUTIVE SUMMARY**

## HERITAGE SCOPING REPORT FOR THE PROPOSED MAJUBA CCGT POWER PLANT, AMERSFOORT MAGISTERIAL DISTRICT, MPUMALANGA

A survey was conducted to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of areas in which it is proposed to develop a Combined Cycle Gas Turbine Power Plant is to be developed. For this purpose, three alternative sites, each consisting of various subdivisions, were identified by ESKOM.

Although a variety of heritage resources occur in the larger geographical area, none are known to exist in the three sites selected for the current scooping review.

Based on what was found and its evaluation, it is anticipated that the development can take place in any of the three identified sites, on condition of acceptance of the management measures as set out in Section 7 of this report. The most important of this would be the conducting of a full Phase 1 archaeological survey of the selected corridor in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

In the case where resources do occur, assessing of the potential impact of the development can only be done once a final corridor has been selected. Mitigation of heritage sites implies first of all total avoidance, or, secondly, the recovery of sufficient data from the site in order that it can be studied and understood at a later stage. This latter scenario is not necessarily negative as science stands to benefit from such actions.

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## **GLOSSARY OF TERMS AND ABBREVIATIONS**

2 000 000 - 150 000 Before Present
150 000 - 30 000 BP
30 000 - until c. AD 200
AD 200 - AD 1000
AD 1000 - AD 1830

#### HISTORIC PERIOD

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

core - a piece of stone from which flakes were removed to be used or made into tools

ADRC	Archaeological Data Recording Centre
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency

## HERITAGE SCOPING REPORT FOR THE PROPOSED MAJUBA CCGT POWER PLANT, AMERSFOORT MAGISTERIAL DISTRICT, MPUMALANGA

## 1. INTRODUCTION

An independent heritage consultant was appointed by Bohlweki Environmental to conduct a survey to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of areas in which it is proposed to develop a Combined Cycle Gas Turbine Power Plant is to be developed.

For this purpose, three alternative sites, each consisting of various subdivisions, were identified by ESKOM (Fig. 2). The aim of the survey was to determine the nature and potential of cultural heritage resources found within the boundaries of the area that is to be impacted by the developed. Based on this, a selection is to be made on the most viable area in which the development can take place. This will largely be determined by:

- The significance of identified heritage sites Grade I sites (see Section 5 below), are of national significance and should be avoided.
- The area where the least number of heritage sites will be impacted on.

## 2. TERMS OF REFERENCE

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

This include:

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

The objectives were to

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

## 3. DEFINITIONS AND ASSUMPTIONS

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

 Cultural resources are all non-physical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.

- The *significance* of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.
- Sites regarded as having low significance have already been recorded in full and require no further mitigation. Sites with medium to high significance require further mitigation.
- The latitude and longitude of archaeological sites are to be treated as sensitive information by the developer and should not be disclosed to members of the public.

## 4. STUDY APPROACH AND METHODOLOGY

#### 4.1 Extent of the Study

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

#### 4.2 Methodology

#### 4.1 Preliminary investigation

4.1.1 Survey of the literature

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

4.1.2 Data bases The *Heritage Sites Database* and the *Environmental Potential Atlas* was consulted.

4.1.3 Other sources

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

#### 4.2 Field survey

The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. The area that had to be investigated was identified by Bohlweki Environmental by means of maps. The area was investigated by driving to accessible spots to investigate the areas where the development site would be located. Special attention was given to topographical occurrences such as trenches, holes, outcrops and clusters of trees were investigated.

#### 4.3 **Documentation**

All sites, objects and structures that are identified are documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual

localities are determined by means of the *Global Positioning System* (GPS)<sup>1</sup> and plotted on a map. This information is added to the description in order to facilitate the identification of each locality.

Map datum used: Hartebeeshoek 94 (WGS84).

#### 4.4 Limitations

 The vegetation growth was very dense during the site visit, seriously limiting archaeological visibility.

## 5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

#### 5.1 Site location

The location and extent of the study area can be determined from the map in Figure 1 and 2. It is located to the south west of the town of Amersfoort.

Topographically, the area can be described as rolling hills, with a number of smaller rivers running through it. The geology is largely made up of dolorite in the northern section and shale in the southern section. The original vegetation is classified as Moist Clay Highveld Grassland. The current land use is farming, with grazing been the dominant activity.

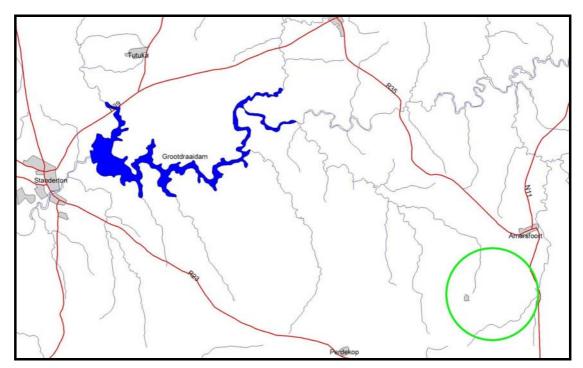


Fig. 1. Location of the study area in regional context.

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

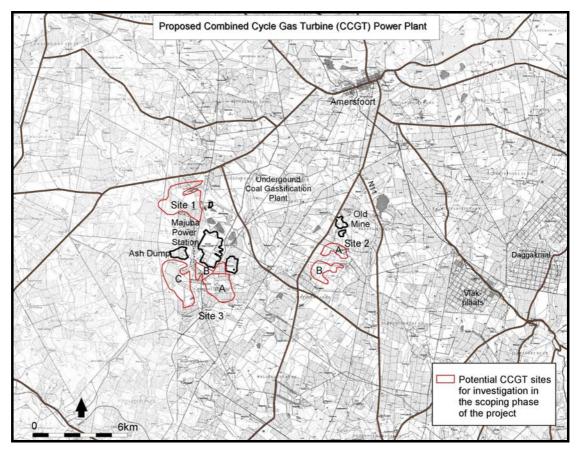


Fig. 2. Location of the study areas (outlined in red) (Map 2729BB: Government Printer, Pretoria)

Portions of the following farms are involved : Bergvliet 65HS, Roodekopjes 67HS, Palmietspruit 68HS, Witpoppies 81HS and Rietpoort 83HS.

#### 5.2 Historic overview

#### 5.2.1 Stone Age

No information about Stone Age habitation of the area is available. There might be two reasons for this. Firstly, it is unlikely that Stone Age people would have occupied the area specific, as it would have been to cold and no shelters or caves exists locally that could be used to shelter in. Secondly, no systematic survey of the area has been done and, as a result, no sites have been reported.

#### No sites, features or objects dating to the Stone Age were identified in the study areas.

#### 5.2.2 Iron Age

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Silver Leaves, south east of Tzaneen dating to AD 270. However, Iron Age occupation of the eastern highveld area (including the study area) did not start much before

the 1500s. Some sites dating to the Late Iron Age are know to exist to the north west of the study area, as well as some distance to the south. These are typical stone walled sites that can be related to the Sotho/Tswana occupation of the region.

#### No sites, features or objects dating to the Iron Age were identified in the study areas.

#### 5.2.3 Historic period

The historical period in this area starts with the arrival of early missionaries, hunters and traders, followed later by the Voortrekkers, who settled permanently and started to farm in the area and developed a number of towns. The town of Amersfoort was founded in 1876 and proclaimed in 1888. During the Anglo Boer War (1899-1902), some skirmishes took place in the region (Raper 2004:9).

A number of farm labourer homesteads (Fig. 4) dot the landscape – fortunately none occur within the boundaries of the study areas. However, it is cautioned that some informal cemeteries linked to these homesteads might be located in the areas and could not be identified due to the dense grass cover encountered during the field survey.

#### No sites, features or objects dating to the Iron Age were identified in the study areas.

## 6. IDENTIFICATION OF RISK SOURCES

An Heritage Impact Assessment is focused on two phases of a proposed development: **the construction** and **operation phases**. However, from a cultural heritage perspective, this distinction does not apply. Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted, can be written into the management plan, whence they can be avoided or cared for in the future.

The following project actions may impact negatively on archaeological sites and other features of cultural importance. The actions are most likely to occur during the construction phase of a project.

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

## Construction phase:

#### **Operation phase:**

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



Fig. 3. View, typical of the different study areas.



Fig. 4. Local farm labourer homesteads dot the environment.

#### 7. RECOMMENDED MANAGEMENT MEASURES

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

#### 7.1 Objectives

Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.

The preservation and appropriate management of new discoveries in accordance with the National Heritage Resources Act (Act No. 25 of 1999), should these be discovered during construction.

#### 7.2.1 Construction phase

General management objectives and commitments:

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

The following shall apply:

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

#### 7.2.2 Operation phase

General management objectives and commitments:

• To avoid disturbing sites of heritage importance.

The following shall apply:

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

#### 7.2.3 Impact minimization

Impact analysis and resultant management of cultural resources under threat of the proposed development, are based on the present understanding of the construction and operation of a transmission line. The following objectives and design standards, if adhered to, can eliminate, minimize or enhance potential impacts.

- The developer must ensure that an archaeologist inspects each site selected for the erection of a pole structure. If a particular pole structure impacts on a heritage site but cannot be shifted, mitigation measures, i.e. the controlled excavation of the site prior to development, can be implemented. This can only be done by a qualified archaeologist after obtaining a valid permit from SAHRA.
- The same action holds true for any infrastructure development such as access routes, construction campsites, etc.

- In the past, people used to settle near water sources. Therefore riverbanks, rims of pans and smaller watercourses should be avoided as far as possible.
- In this particular part of the country, Iron Age people also preferred to settle on the saddle (or neck) between mountains (hills/outcrops). These areas should also be avoided.
- Avoid all patches bare of vegetation unless previously inspected by an archaeologist. These might be old settlement sites.
- Rock outcrops might contain rock shelters, engravings or stone walled settlements, and should therefore be avoided unless previously inspected by an archaeologist.
- Communities living close to the proposed corridor should be consulted as to the existence of sites of cultural significance, e.g. graves, as well as sites that do not show any structures but have emotional significance, such as battlefields, etc.
- All graves or cemeteries should be avoided, unless when totally impossible. The correct
  procedure, i.e. notification of intent to relocate them, consultation with descendants and
  permit application, should then be followed in relocating the graves. If any of the graves
  are older than 60 years, they can only be exhumed by an archaeologist. Graves of victims
  of conflict requires additional permits from SAHRA before they can be relocated.
- Archaeological material, by its very nature, occurs below ground. The developer should therefore keep in mind that archaeological sites might be exposed during the construction work. If anything is noticed, work in that area should be stopped and the occurrence should immediately be reported to a museum, preferably one at which an archaeologist is available. The archaeologist should then investigate and evaluate the find.
- Any mitigation measures applied by an archaeologist, in the sense of excavation and documentation, should be published in order to bring this information into the public domain.

## 8. CONCLUSIONS

A survey was conducted to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of areas in which it is proposed to develop a Combined Cycle Gas Turbine Power Plant is to be developed. For this purpose, three alternative sites, each consisting of various subdivisions, were identified by ESKOM.

Although a variety of heritage resources occur in the larger geographical area, none are known to exist in the three sites selected for the current scooping review.

Based on what was found and its evaluation, it is anticipated that the development can take place in any of the three identified sites, on condition of acceptance of the management measures as set out in Section 7 of this report. The most important of this would be the conducting of a full Phase 1 archaeological survey of the selected corridor in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

In the case where resources do occur, assessing of the potential impact of the development can only be done once a final corridor has been selected. Mitigation of heritage sites implies first of all total avoidance, or, secondly, the recovery of sufficient data from the site in order that it can be studied and understood at a later stage. This latter scenario is not necessarily negative as science stands to benefit from such actions.

## 9. REFERENCES

#### 9.1 Data bases

Heritage Sites Database, Pretoria.

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

#### 9.2 Literature

Acocks, J.P.H. 1975. *Veld Types of South Africa*. Memoirs of the Botanical Survey of South Africa, No. 40. Pretoria: Botanical Research Institute.

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Van Schalkwyk, J.A. 2006. *Heritage impact scoping report for the underground coal gasification plant, Roodekopjes 67HS, Amersfoort district, Mpumalanga*. Unpublished report 2006KH055. Pretoria: National Cultural History Museum.

Van Warmelo, N.J. 1935. *A Preliminary survey of the Bantu Tribes of South Africa*. Ethnological Publications No. 5. Pretoria: Government Printer.

Van Warmelo, N.J. 1977. *Anthropology of Southern Africa in Periodicals to 1950.* Pretoria: Government Printer.

#### 9.3 **Maps**

1: 50 000 Topocadastral maps – 2729BB

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

#### Significance

The *significance* of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

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

1. Historic value			
Is it important in the community, or pattern of history			
Does it have strong or special association with the life or w	ork of a pe	erson.	
group or organisation of importance in history	o o. a po	,	
Does it have significance relating to the history of slavery			
2. Aesthetic value			
It is important in exhibiting particular aesthetic characterist	ics valued	bv a	
community or cultural group		~ )	
3. Scientific value			
Does it have potential to yield information that will c	ontribute t	o an	
understanding of natural or cultural heritage			
Is it important in demonstrating a high degree of creati	ive or tech	nnical	
achievement at a			
particular period			
4. Social value			
Does it have strong or special association with a particula	ar commun	ity or	
cultural group for social, cultural or spiritual reasons		-	
5. Rarity			
Does it possess uncommon, rare or endangered aspects of n	atural or cu	ıltural	
heritage			
6. Representivity			
Is it important in demonstrating the principal characteristics	s of a part	icular	
class of natural or cultural places or objects			
Importance in demonstrating the principal characteristics			
landscapes or environments, the attributes of which ider	ntify it as l	being	
characteristic of its class			
Importance in demonstrating the principal characteristics of			
(including way of life, philosophy, custom, process, land-use,			
or technique) in the environment of the nation, province, region			
7. Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Regional			
Local			
Specific community			
8. Significance rating of feature			1
1. Low			
2. Medium			
3. High			

Significance of impact:

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

#### Certainty of prediction:

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

#### Recommended management action:

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

1 = no further investigation/action necessary

2 = controlled sampling and/or mapping of the site necessary

3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary

4 = preserve site at all costs

#### Legal requirements:

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

## **APPENDIX 2. RELEVANT LEGISLATION**

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

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

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

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

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

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

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

(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and reinterment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority. The National Heritage Resources Act (Act no 25 of 1999) stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

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

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

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

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

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

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

## **APPENDIX 3: SURVEY RESULTS**

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

Map datum used: Hartebeeshoek 94 (WGS84).

1. <u>Location</u>: <u>Description</u>: <u>Discussion</u>: <u>Evaluation of significance</u>: <u>Significance of impact</u>: <u>Certainty of prediction</u>: <u>Recommended management action</u>: <u>Legal requirements</u>: