

# HERITAGE IMPACT ASSESSMENT: PROPOSED SIYANQOBA 132kV POWERLINE, WITBANK MAGISTERIAL DISTRICT, MPUMALANGA

*Report for:*

**Ecosphere Environmental Management Services**

P.O. Box 6510, Vanderbijlpark, 1900

Tel: 084 284 3333

Email: christelle@ecosphere.co.za

On behalf of:

**Emalahleni Local Municipality**



**Dr Jayson Orton**

**ASHA Consulting (Pty) Ltd**

23 Dover Road, Muizenberg, 7945

Tel: (021) 788 1025 | 083 272 3225

Email: jayson@asha-consulting.co.za

**Jaco van der Walt**

**HCAC**

37 Oliehout Street, Modimolle, 0510

Tel: 082 373 8491

Email: jaco@heritageconsultants.co.za

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## SUMMARY

ASHA Consulting (Pty) Ltd was appointed by Ecosphere to conduct an assessment of the potential impacts to heritage resources that might occur through the proposed construction of a new 11.5 km long 132 kV powerline between the Vulcan and Siyaqoba Substations near eMalahleni, Mpumalanga.

The site was found to be largely flat and coated in variably in wetland vegetation, grass and gum tree plantations. The substrate was virtually entirely of sand but one small area of sandstone was seen at ground level. Finds were limited to a stone cairn with a very low probability of being a grave and a cement floor of unknown function. These finds are of low cultural significance, although if the cairn was proved to be a grave then it would be attributed high significance. No fossils were seen. The local landscape has been heavily altered in recent years by the construction of several powerlines and substations as well as extensive township development. The cultural landscape is thus of no concern.

The potential impacts to heritage resources are considered to be of low significance both before and after mitigation and no fatal flaws are expected. The project will result in a socio-economic benefit in that a permanent electricity supply will be provided to the newly constructed Siyaqoba township.

It is recommended that the project be allowed to proceed but subject to the following recommendations:

- For precautionary reasons, the stone cairn at waypoint 355 must be identified on project maps and protected and avoided during construction;
- The powerline service road must avoid the waypoint 355 area, staying at least 10 m away from the cairn;
- Workers must be alerted to the possibility of uncovering fossils, archaeological materials (e.g. stone artefacts, pottery) or graves and instructed to stop work, protect any finds and report them to the heritage authorities. They may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

## Glossary

**Early Stone Age:** Period of the Stone Age extending approximately between 2 million and 200 000 years ago.

**Later Stone Age:** Period of the Stone Age extending over the last approximately 20 000 years.

**Late Iron Age:** Early farming communities (AD 1300 – 1840)

**Middle Iron Age:** Early farming communities (AD 900 – 1300)

**Middle Stone Age:** Period of the Stone Age extending approximately between 200 000 and 20 000 years ago.

## Abbreviations

**APHP:** Association of Professional Heritage Practitioners

**ASAPA:** Association of Southern African Professional Archaeologists

**BA:** Basic Assessment

**CRM:** Cultural Resources Management

**DARDLEA:** Mpumalanga Provincial Department of Agriculture, Rural Development, Land and Environmental Affairs

**ESA:** Early Stone Age

**GP:** General Protection

**GPS:** global positioning system

**HIA:** Heritage Impact Assessment

**LSA:** Later Stone Age

**MSA:** Middle Stone Age

**NEMA:** National Environmental Management Act (No. 107 of 1998)

**NHRA:** National Heritage Resources Act (No. 25) of 1999

**PPP:** Public Participation Process

**SAHRA:** South African Heritage Resources Agency

**SAHRIS:** South African Heritage Resources Information System

**WWTW:** Waste Water Treatment Works

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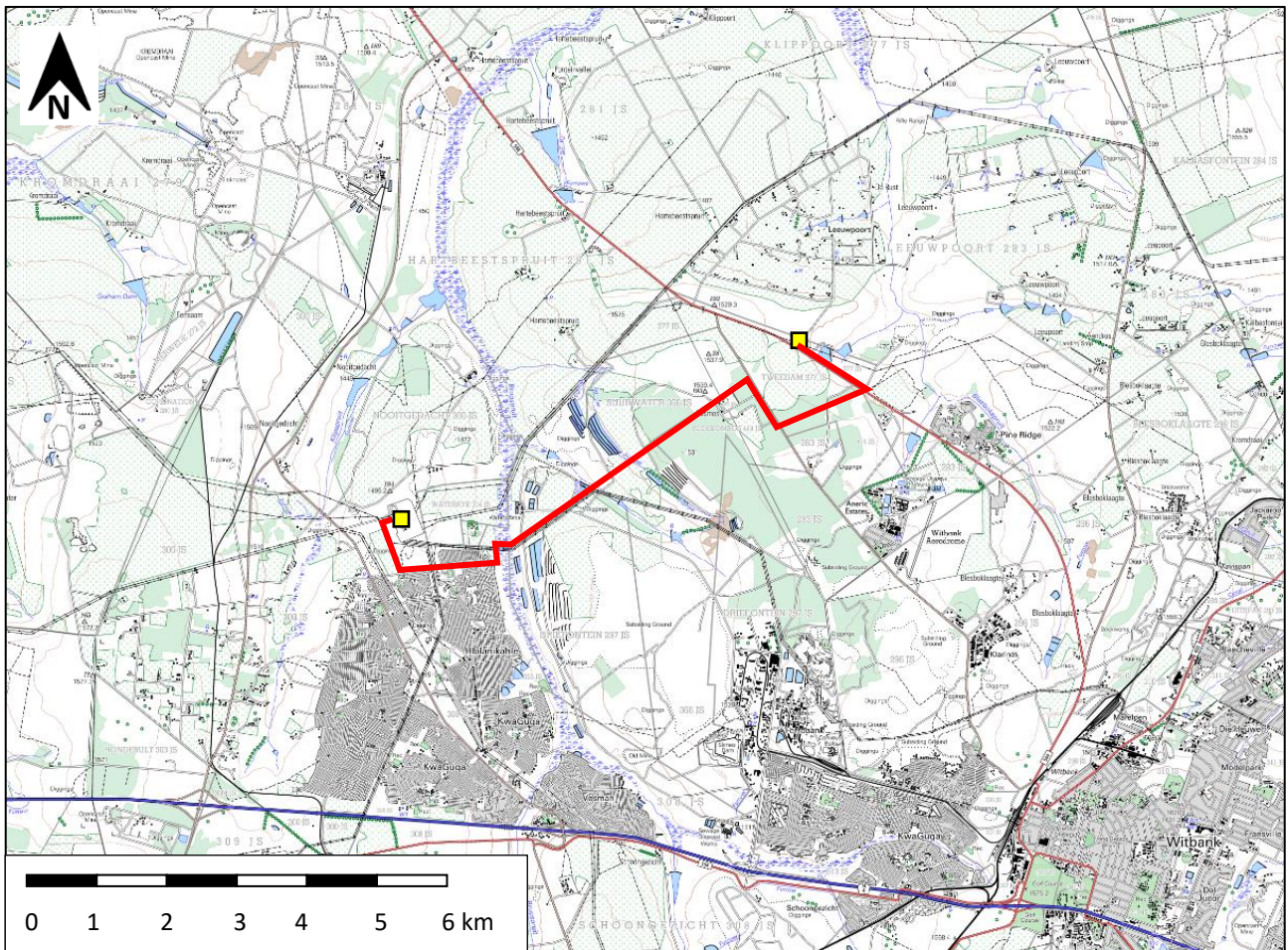
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# 1. INTRODUCTION

ASHA Consulting (Pty) Ltd was appointed by Ecosphere to conduct an assessment of the potential impacts to heritage resources that might occur through the proposed construction of a new 11.5 km long, 132 kV powerline that will link two substations in the vicinity of Siyanqoba and Hlalanikahle, just northwest of Emalahleni, Mpumalanga (Figures 1 & 2). The west and east ends of the project are at S25° 49' 49.0" E29° 06' 32.0" and S25° 48' 14.5" E29° 10' 16.2" respectively.

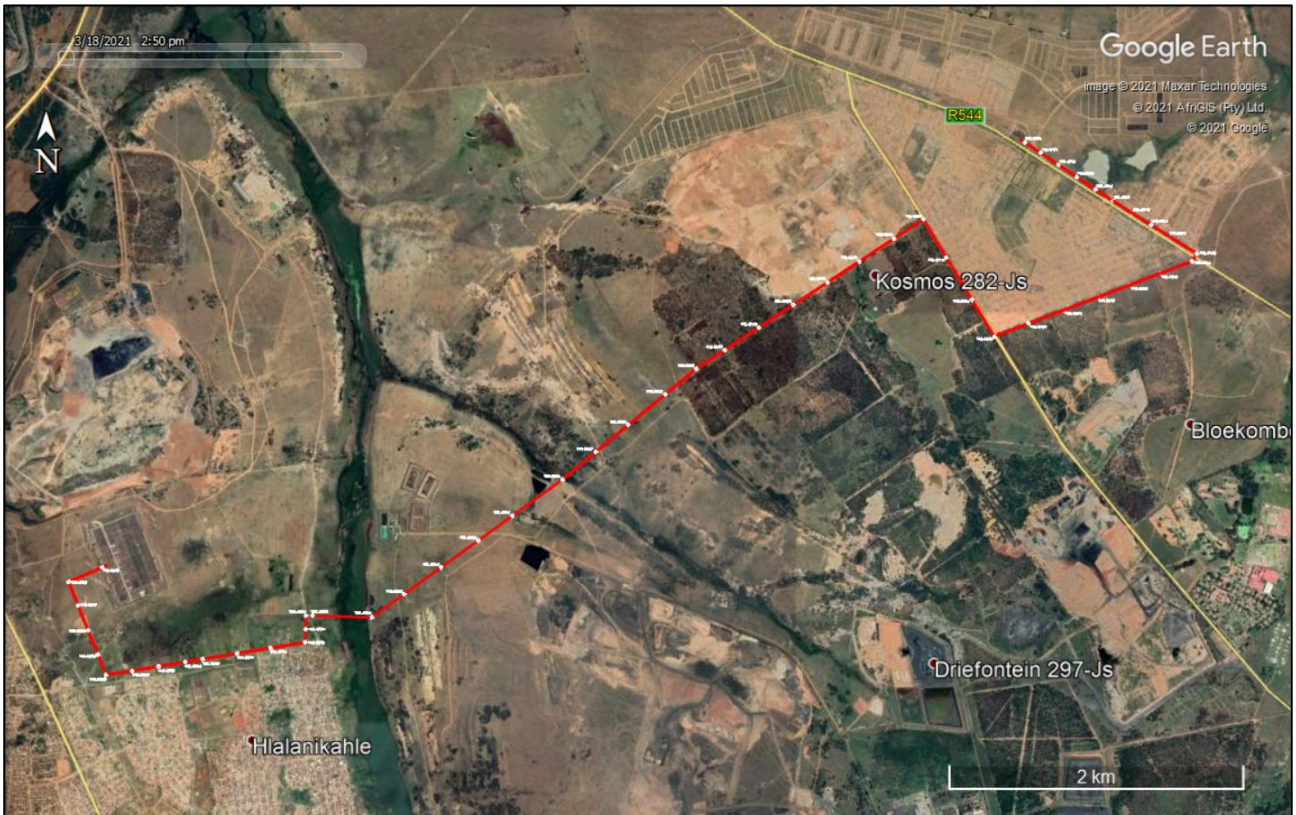


**Figure 1:** Extract from 1:50 000 topographic map 2529CC showing the location of the site. The yellow squares are the existing Eskom Substations and the red line is the proposed new powerline. Source of basemap: Chief Directorate: National Geo-Spatial Information. Website: [www.ngi.gov.za](http://www.ngi.gov.za).

The properties affected by the power line are as follows:

- Portion 1 of Farm Bloekombos 414-JS
- Portion 4 of Farm Driefontein 297-JS
- Portion 7 of Farm Leeuwpoort 283-JS
- Portion 11 of Farm Driefontein 297-JS
- Portion 30 of Farm Nooitgedacht 300-JS
- Portion 122 of Farm Nooitgedacht 300-JS
- Remainder of Farm Suurwater 366-JS
- Remainder of Farm Bloekombos 414-JS

- Erf 9056 (Park)
- Erf 2954 (Park)
- Remainder of Farm Leeuwpoort 283-JS / Remainder
- Erf 1 Hlalanikahle Ext 3



**Figure 2:** Aerial view of the study area. The red line is the proposed new powerline, the small white markings are the pylon positions.

## 1.1. The proposed project

### 1.1.1. Project description

The proposed linear activity will entail the construction of a 132kV/40MVA transmission line suspended by steel mono poles, 20 to 24m in height. The power line will run from the existing Eskom 132 kV Vulcan Substation to the existing 132/22/11 kV Siyanqoba Substation, and a 20 MVA, 132/22/11 kV power transformer will be installed at Siyanqoba Substation, to provide a dedicated bulk power supply to the existing Siyanqoba Township.

The proposed development will provide electrical services to 1 300 stands, of which 85% of these stands have an electrical connection. This is a temporary connection, therefore it is a requirement to construct a 132 kV electrical overhead line to replace the temporary connection.

### 1.1.2. Identification of alternatives

An original route was proposed but this was then modified in order to meet engineering requirements. A wetland and flood line delineation was then conducted for this route and this

resulted in the need for further changes in order to avoid sensitive wetland environments. The resulting alignment, which is assessed in this report, is thus the only feasible identified route. As such, this assessment considers only the preferred alternative and the no-go alternative.

### 1.1.3. Aspects of the project relevant to the heritage study

All aspects of the proposed development are relevant since excavations may impact on archaeological and/or palaeontological remains, while all above-ground aspects create potential visual (contextual) impacts to the cultural landscape and any significant heritage sites that might be visually sensitive.

## 1.2. Terms of reference

ASHA Consulting was asked to compile a field-based heritage impact assessment (HIA) that considers all relevant aspects of heritage. The HIA should make recommendations for any mitigation or management measures that would be required during the construction phase of the project.

## 1.3. Scope and purpose of the report

An HIA is a means of identifying any significant heritage resources before development begins so that these can be managed in such a way as to allow the development to proceed (if appropriate) without undue impacts to the fragile heritage of South Africa. This HIA report aims to fulfil the requirements of the heritage authorities such that a comment can be issued by them for consideration by Mpumalanga Provincial Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA) who will review the Basic Assessment (BA) and grant or refuse authorisation. The HIA report will outline any management and/or mitigation requirements that will need to be complied with from a heritage point of view and that should be included in the conditions of authorisation should this be granted.

## 1.4. The author

Dr Jayson Orton has an MA (UCT, 2004) and a D.Phil (Oxford, UK, 2013), both in archaeology, and has been conducting Heritage Impact Assessments and archaeological specialist studies in South Africa (primarily in the Western Cape and Northern Cape provinces) since 2004 (please see curriculum vitae included as Appendix 1). He has also conducted research on aspects of the Later Stone Age in these provinces and published widely on the topic. He is an accredited heritage practitioner with the Association of Professional Heritage Practitioners (APHP; Member #43) and also holds archaeological accreditation with the Association of Southern African Professional Archaeologists (ASAPA) CRM section (Member #233) as follows:

- Principal Investigator: Stone Age, Shell Middens & Grave Relocation; and
- Field Director: Colonial Period & Rock Art.

Jaco van der Walt has been practicing as a CRM archaeologist for 20 years. He obtained an MA degree in Archaeology from the University of the Witwatersrand focusing on the Iron Age in 2012 and is a PhD candidate at the University of Johannesburg focusing on Stone Age Archaeology with specific interest in the Middle Stone Age (MSA) and Later Stone Age (LSA). Jaco is an accredited member of ASAPA (#159) and the APHP (#114) and have conducted more than 500 impact



assessments in Limpopo, Mpumalanga, North West, Free State, Gauteng, KZN as well as the Northern and Eastern Cape Provinces in South Africa.

Jaco has worked on various international projects in Zimbabwe, Botswana, Mozambique, Lesotho, DRC Zambia, Guinea, Afghanistan and Tanzania. Through this he has a sound understanding of the IFC Performance Standard requirements, with specific reference to Performance Standard 8 – Cultural Heritage.

### **1.5. Declaration of independence**

ASHA Consulting (Pty) Ltd and its consultants have no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

## **2. HERITAGE LEGISLATION**

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: prehistoric and historical material (including ruins) more than 100 years old as well as military remains more than 75 years old, palaeontological material and meteorites;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: “any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith”;
- Palaeontological material: “any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace”;
- Archaeological material: a) “material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures”; b) “rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation”; c) “wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation”; and d) “features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found”;
- Grave: “means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place”; and

- Public monuments and memorials: “all monuments and memorials a) “erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government”; or b) “which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.”

Section 3(3) describes the types of cultural significance that a place or object might have in order to be considered part of the national estate. These are as follows:

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

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list “historical settlements and townscapes” and “landscapes and natural features of cultural significance” as part of the National Estate. Furthermore, some of the points in Section 3(3) speak directly to cultural landscapes.

Section 38(8) of the NHRA states that if an impact assessment is required under any legislation other than the NHRA then it must include a heritage component that satisfies the requirements of S.38(3). Furthermore, the comments of the relevant heritage authority must be sought and considered by the consenting authority prior to the issuing of a decision. Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended, the project is subject to a Basic Assessment. The present report provides the heritage component. Mpumalanga Provincial Heritage Resource Authority (MPHRA; for built environment and cultural landscapes) and the South African Heritage Resources Agency (SAHRA; for archaeology and palaeontology) are required to provide comment on the proposed project in order to facilitate final decision making by DARDLEA.

### 3. METHODS

#### 3.1. Literature survey and information sources

A survey of available literature was carried out to assess the general heritage context into which the development would be set. The information sources used in this report are presented in Table 1. Data were also collected via a field survey.

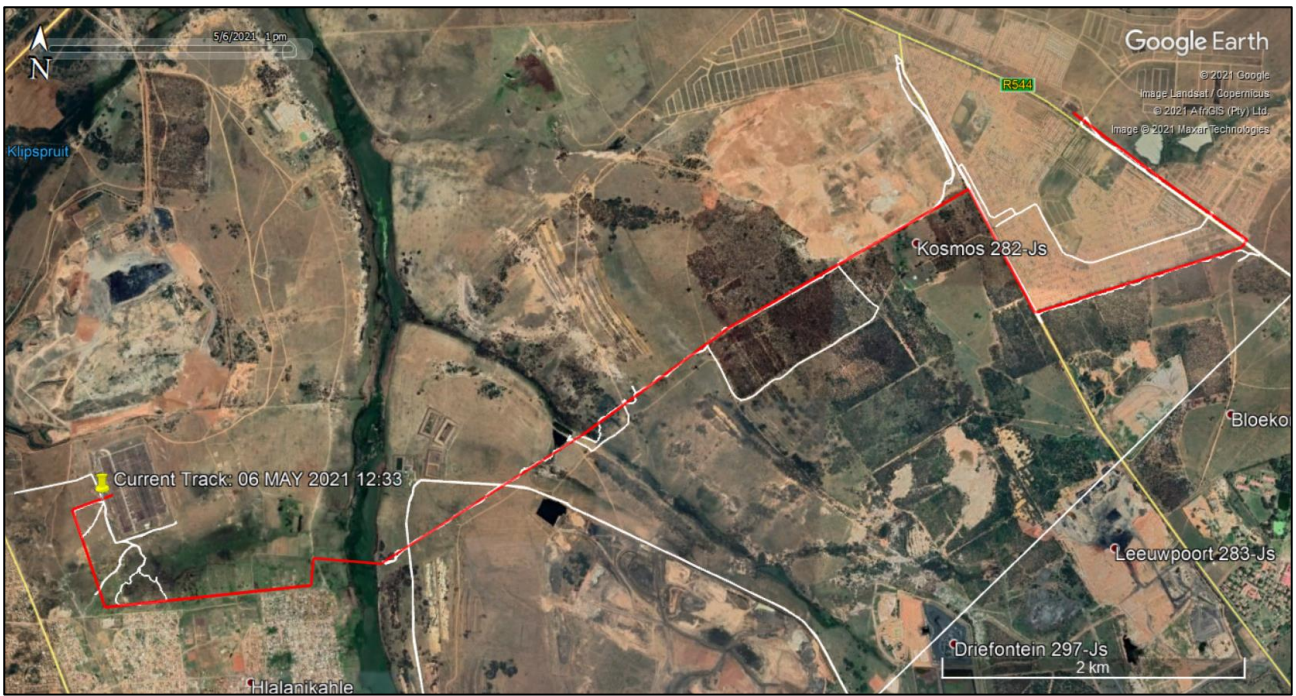
*Table 1: Information sources used in this assessment.*

Data / Information	Source	Date	Type	Description
Maps	Chief Directorate: National Geo-Spatial Information	Various	Spatial	Historical and current 1:50 000 topographic maps of the study area and immediate surrounds
Aerial photographs	Chief Directorate: National Geo-Spatial Information	Various	Spatial	Historical aerial photography of the study area and immediate surrounds
Aerial photographs	Google Earth	Various	Spatial	Recent and historical aerial photography of the study area and immediate surrounds
Cadastral data	Chief Directorate: National Geo-Spatial Information	Various	Survey diagrams	Historical and current survey diagrams, property survey and registration dates
Background data	South African Heritage Resources Information System (SAHRIS)	Various	Reports	Previous impact assessments for any developments in the vicinity of the study area
Palaeontological sensitivity	South African Heritage Resources Information System (SAHRIS)	Current	Spatial	Map showing palaeontological sensitivity and required actions based on the sensitivity.
Background data	Books, journals, websites	Various	Books, journals, websites	Historical and current literature describing the study area and any relevant aspects of cultural heritage.

#### 3.2. Field survey

The site was subjected to a detailed foot survey on the 4<sup>th</sup> and 5<sup>th</sup> of May 2021 (Figure 3). This was during autumn and, given recent rainfall the ground visibility for the archaeological survey was moderate. Other heritage resources ([apart from graves that could be covered by vegetation](#)) are not affected by seasonality. During the survey, the positions of finds and survey tracks were recorded on a hand-held Global Positioning System (GPS) receiver set to the WGS84 datum. Photographs were taken at times in order to capture representative samples of both the affected heritage and the landscape setting of the proposed development.

It should be noted that the amount of time between the dates of the field inspection and final report do not materially affect the outcome of the report.



**Figure 3:** Aerial view of the study area showing the proposed powerline in red and the track logs in white.

### 3.3. Specialist studies

A separate palaeontological specialist study was commissioned for this assessment and is presented as a separate report to be read with the HIA. Dr Marion Bamford compiled this study.

### 3.4. Grading

S.7(1) of the NHRA provides for the grading of heritage resources into those of National (Grade I), Provincial (Grade II) and Local (Grade III) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade I and II resources are intended to be managed by the national and provincial heritage resources authorities respectively, while Grade III resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading.

It is intended under S.7(2) that the various provincial authorities formulate a system for the further detailed grading of heritage resources of local significance, but this is generally yet to happen. SAHRA (2007) has formulated its own system<sup>1</sup> for use in provinces where it has commenting authority. In this system sites of high local significance are given Grade IIIA (with the implication that the site should be preserved in its entirety) and Grade IIIB (with the implication that part of the site could be mitigated and part preserved as appropriate) while sites of lesser significance are referred to as having 'General Protection' (GP) and rated as GP A (high/medium significance, requires mitigation), GP B (medium significance, requires recording) or GP C (low significance, requires no further action).

<sup>1</sup> The system is intended for use on archaeological and palaeontological sites only.

### **3.5. Consultation**

The NHRA requires consultation as part of an HIA but, since the present study falls within the context of a Basic Assessment, which includes a public participation process (PPP), no dedicated consultation was undertaken as part of the HIA. Interested and affected parties would have the opportunity to provide comment on the heritage aspects of the project during the PPP.

### **3.6. Assumptions and limitations**

The field study was carried out at the surface only and hence any completely buried archaeological sites would not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface. Eucalyptus plantations (through which it was impossible to drive) in the central area, wetlands in the west, and fenced stands in the east and west all hampered access along portions of the powerline. In addition, safety concerns on several areas meant that some parts of the study area could not be searched on foot.

## **4. PHYSICAL ENVIRONMENTAL CONTEXT**

### **4.1. Site context**

From west to east, the powerline will be constructed through old agricultural and grazing lands along the northern margin of Hlalanikahle, across the Brugspruit River, through more old lands, along the edge of a plantation and around the southern end of the Siyanqoba township to finish along the R544. The last 1.45 km will run along the eastern side of this road. There are existing substations at either end of the powerline.

### **4.2. Site description**

The western part of the study area to the south of the Vulcan Substation was found to be very waterlogged (Figure 4). Between the wetland and the Brugspruit River almost all dry land was informally occupied and fenced, preventing access. To the east of the river the line traverses old agricultural lands, now covered in grass (Figure 5). It then enters Eucalyptus plantations (Figures 6 & 7) where illegal dumping of domestic waste was evident in some areas, especially along the south-western margin of Siyanqoba (Figure 8). There was also much disturbance of the substrate evident in this general area. The eastern section along the R544 was grass-covered with some evidence of dumping (Figures 9 to 11).

The surface is sandy but alternating layers of coal, sandstone outcrops and ferricrete underlie the cover sands as shown by ground level exposures along a short section of the route just southwest of the gum tree plantations. The rest was all sand-covered with a trench in one area showing more than 2 m sand depth.



**Figure 4:** View towards the northwest showing the waterlogged wetland areas to the south of the Vulcan substation.



**Figure 5:** View towards the west looking across the Brugspruit River with dense grass cover in the foreground. Hlalanikahle is visible in the background. The new powerline would be in the immediate foreground.



**Figure 6:** View towards the northeast in the central part of the study area where the powerline leaves the grass-covered fields and enters gum tree plantations.



**Figure 7:** View through the Eucalyptus plantations showing tree density and the quantity of leaf litter coating the ground.



**Figure 8:** *Illegal dumping along the powerline route in the vicinity of the gum tree plantation.*



**Figure 9:** *View towards the northwest showing grass and bush cover as well as illegal dumping along the powerline route alongside the R544.*





**Figure 10:** View towards the southeast showing site conditions along the eastern portion of the powerline. The R544 lies to the right.



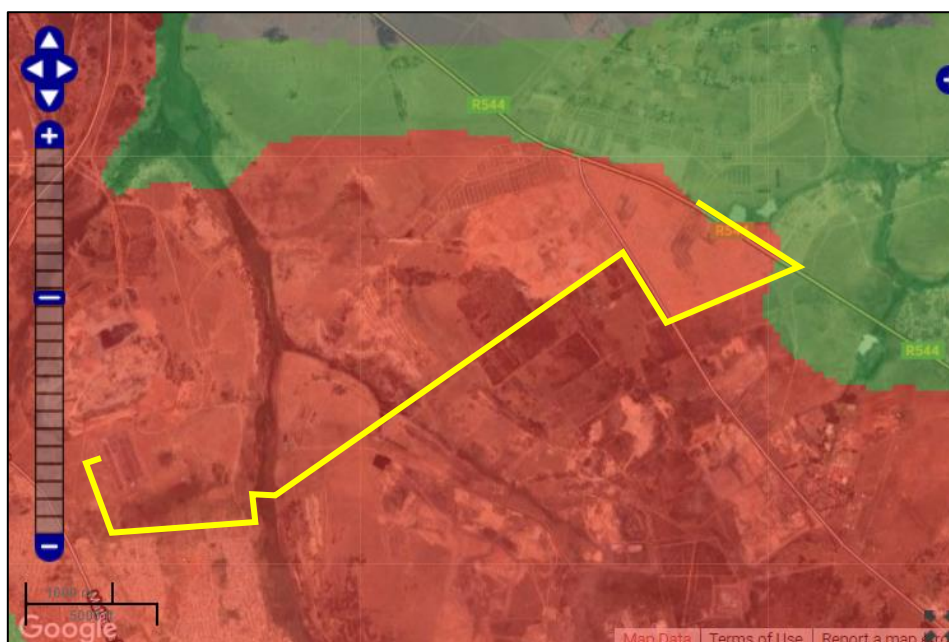
**Figure 11:** View towards the northwest towards the Siyanqoba Substation with the R544 being towards the left.

## 5. FINDINGS OF THE HERITAGE STUDY

This section describes the heritage resources recorded in the study area during the course of the project.

### 5.1. Palaeontology

The SAHRIS Palaeosensitivity map shows the study area to be underlain by sediments of very high palaeontological sensitivity. However, because rock exposures were almost absent, Bamford (2021) has assessed the potential palaeontological impacts for this project from the desktop only. She found that the chances of significant fossils being impacted are very low.



**Figure 12:** Extract from the SAHRIS Palaeosensitivity map showing the study area (yellow line) to be largely of very high palaeontological sensitivity (red shading) but moderate (green shading) in the very far eastern part.

### 5.2. Archaeology

#### 5.2.1. Desktop study

Very few Early Stone Age sites are on record for Mpumalanga and no sites dating to this period are expected for the study area. The closest known ESA site is Maleoskop on the farm Rietkloof close to Groblersdal to the north east of the study area (Boshoff 2005). This is one of only a handful of such sites in Mpumalanga.

The MSA has not been extensively studied in Mpumalanga but evidence of this period has been excavated at Bushman Rock Shelter, a well-known site on the farm Klipfonteinhoek in the Ohrigstad district. This cave was excavated twice in the 1960s by Louw and later by Eloff. The MSA layers show that the cave was repeatedly visited over a long period. Radiocarbon dates indicate ages of more than 47 000 BP (Before Present) for the MSA while the main LSA occupation is dated between

12 500 and 9500 BP (Porráz *et al.* 2015). A few sherds of Iron Age pottery indicate at least ephemeral occupation of the site during that time. Some isolated MSA artefacts were recorded by Van Vollenhoven (1992) and Huffman (1999) closer to eMalahleni and Middleburg.

Several LSA rock shelters with rock art have been documented throughout the Province (Bornman, 1995; Schoonraad in Barnard, 1975; Delius, 2007). These include areas such as eMalahleni, Ermelo, Barberton, Nelspruit, White River, Lydenburg and Ohrigstad. A Late Stone Age site at Fort Troje, is located close to Cullinan (Bergh 1999) to the west of the current study area.

No Sites dating to the Early or Middle Iron Age have been recorded or are expected for the study area. The same goes for the Later Iron Age period where the study area is situated just outside of the published distribution of Late Iron Age settlements in Mpumalanga. No major black tribes seem to have settled very close to the area where eMalahleni is located today by the start of the nineteenth century, but the Phuthing Tribe was prominent in the area to the north thereof (Bergh 1999).

Several commercial surveys were conducted in the area and Table 2 outlines the main reports consulted. It is clear from the summary findings that Stone Age and Iron Age resources from the eMalahleni area are rare to absent.

**Table 2: Commercial CRM reports compiled for sites close to the study area.**

Author	Year	Project	Summary of findings
Fourie, W.	2012	ATCOM East Expansion of the Impunzi Colliery, on Portions of the Farms Steenkoolspruit 18 IS, Van Dyksdrift 19 IS and Kromfontein 30 IS, Emalahleni, Mpumalanga Province Heritage Impact Report	33 heritage structures and 11 cemeteries
Karodia, S.	2013	Letter of request of exemption from a HIA for the EIA required for an integrated waste management licence at the Landau Colliery	No Heritage resources
Van Wyk Rowe, C.	2014	Specialist report phase 1 archaeological / heritage impact assessment for proposed Siyanqoba Residential development on the farms Tweedam 377 JS and remaining extent of Leeuwpoot 283 JS, Emalahleni, Mpumalanga Province	Large Graveyard
Pelser, A.J.	2014	A phase 1 HIA report for a proposed township development on the remainder of the farm Leeuwpoot 283JS & PTN 79 of Blesboklaagte 296JS, Emalahleni, Mpumalanga	No heritage resources
Van Vollenhoven, A.C.	2016	A report on a cultural heritage impact assessment for the Installation of a bulk sewer line from Pine Ridge Pump Station to the Klipspruit Sewage Treatment Works, Emahlaleni, Mpumalanga Province	No heritage resources
Van der Walt, J.	2019	Heritage Impact Assessment for Transalloys Power Plant Part II Amendment, Mpumalanga Province	Stone cairns and structures
Van der Walt, J.	2018	Heritage Impact Assessment for the proposed Kusile truck stop on Portion 20 of the farm Eenzaamheid 534 JR	No sites
Van der Walt, J.	2020	Heritage Impact Assessment for the Gas-fired power generator facility, Emalahleni, Mpumalanga Province	No sites

### 5.2.2. Site visit

No archaeological finds of significance were recorded along the proposed route and the absence of archaeological sites can be attributed to the local geology. Much of the study area is covered by a thick mantle of sand without suitable raw material for Stone Age knappers or to build Iron Age settlements.

### 5.3. Graves

Waypoint 355 (Table 3) marks a packed stone feature located under a small Eucalyptus tree (Figures 13 to 15). This feature is marked by packed stones roughly rectangular in shape, measuring approximately 1.0 x 1.2 meters. The stone cairn is notable as it is out of place on the landscape due to the lack of any other rocks in the sandy area. This feature is orientated E-W and, although unlikely, could possibly be a grave. It lies about 15 m away from the alignment and should not be impacted.

**Table 3:** Details of a possible grave found during the survey.

Waypoint	Location	Description	Significance	Grade
355	25° 49' 15.6684" S 29° 08' 43.1807" E	Stone cairn	Low unless proven to be a grave	GP C unless it is a grave then III A



**Figure 13:** Aerial view of the central part of the study area showing the finds recorded during the survey (numbered yellow waypoints). The pylon positions are shown with white numbered symbols.



**Figure 14:** General site conditions at Waypoint 355. **Figure 15:** Stone cairn at Waypoint 355.

#### 5.4. Historical aspects, the cultural landscape and the Built environment

##### 5.4.1. Desktop study

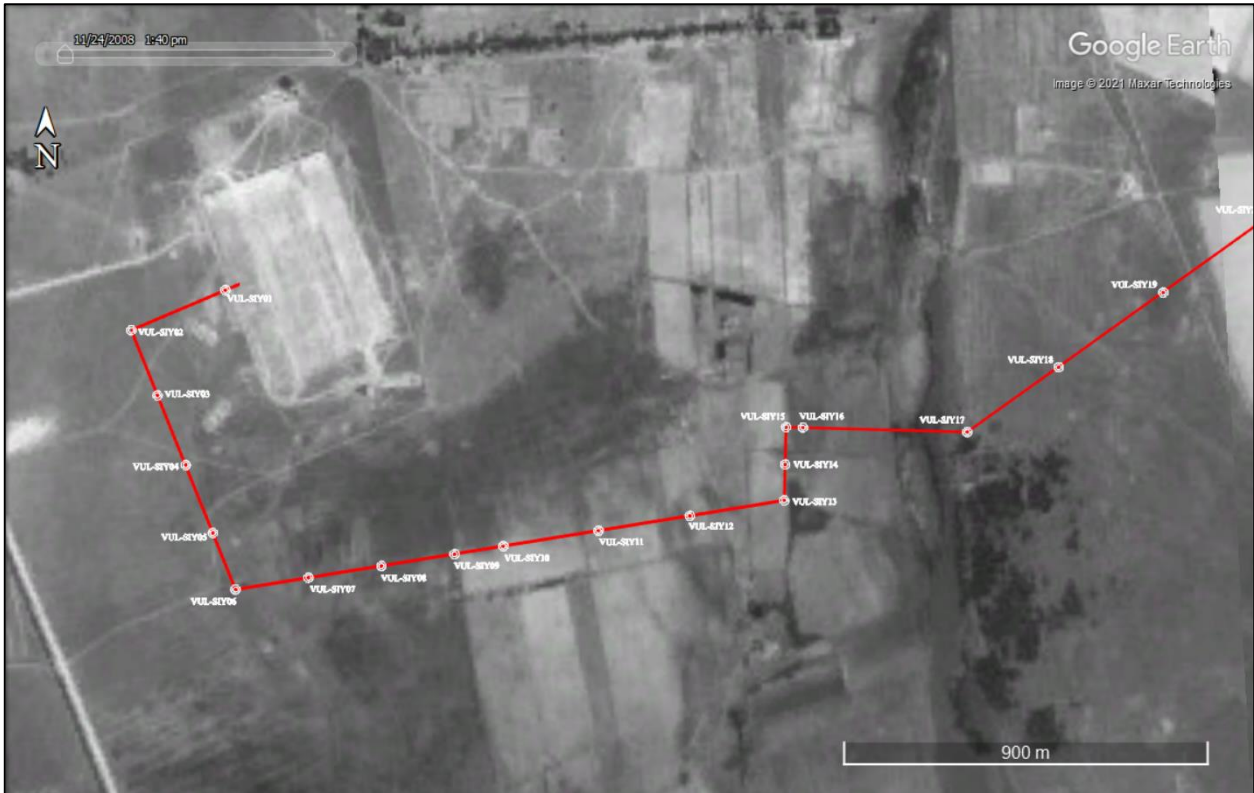
Historical aerial photography from 1971 was sourced and overlaid on Google Earth in order to determine how the landscape has changed over time. It is evident that extensive township development has taken place in the area since that time. The entire study area was either agricultural land (crops and grazing) or plantations (Figures 16 to 18), but the Vulcan Substation was already present 50 years ago (Figure 16). In the east, the R544 had not been constructed in its present alignment; it followed a line further to the west which is still in use as a minor road though the area. No structures are visible anywhere along the alignment.

##### 5.4.2. Site visit

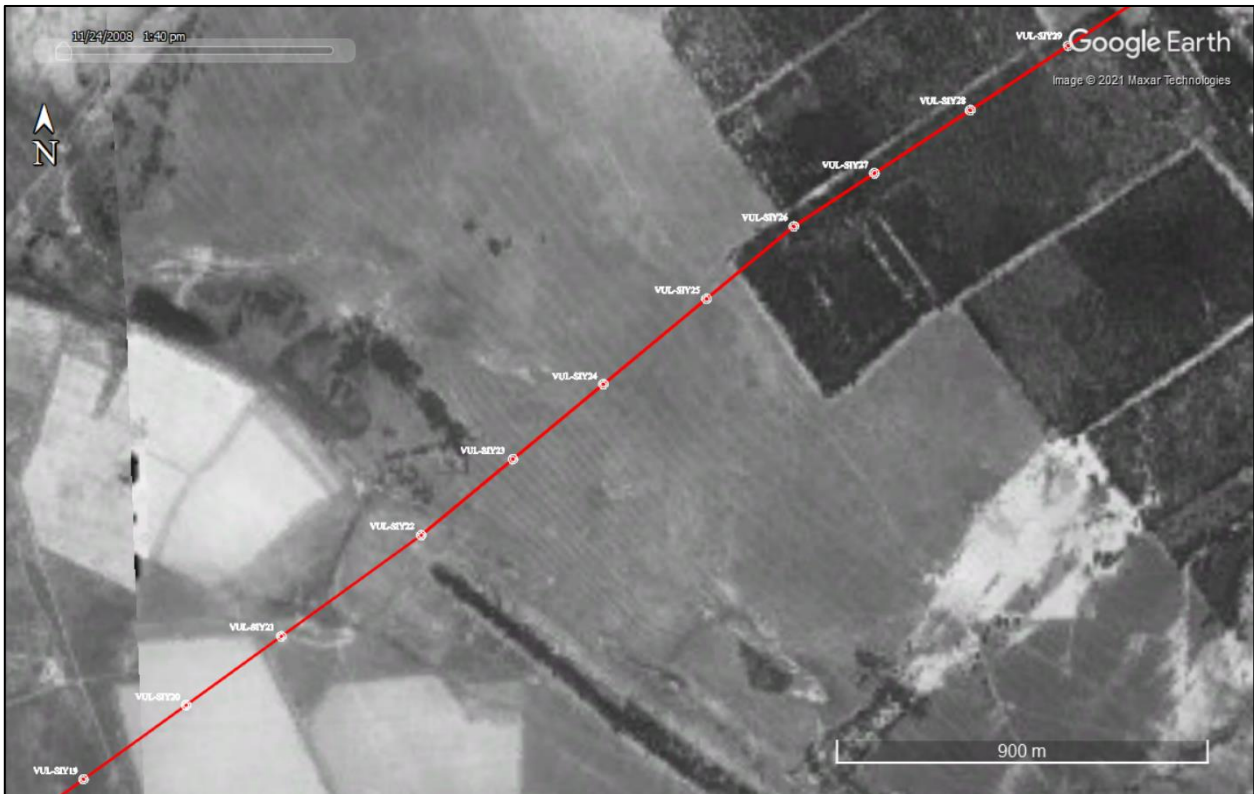
Waypoint 356 is a rectangular cement slab measuring approximately 3 x 8 meters (Table 4; Figure 13 & 19). The feature is located next to an existing powerline between an area marked by mining activity and a water treatment plant. The cement slab seems to have been part of the infrastructure related to the treatment plant and is of no heritage significance.

**Table 4:** Details of a cement floor found during the survey.

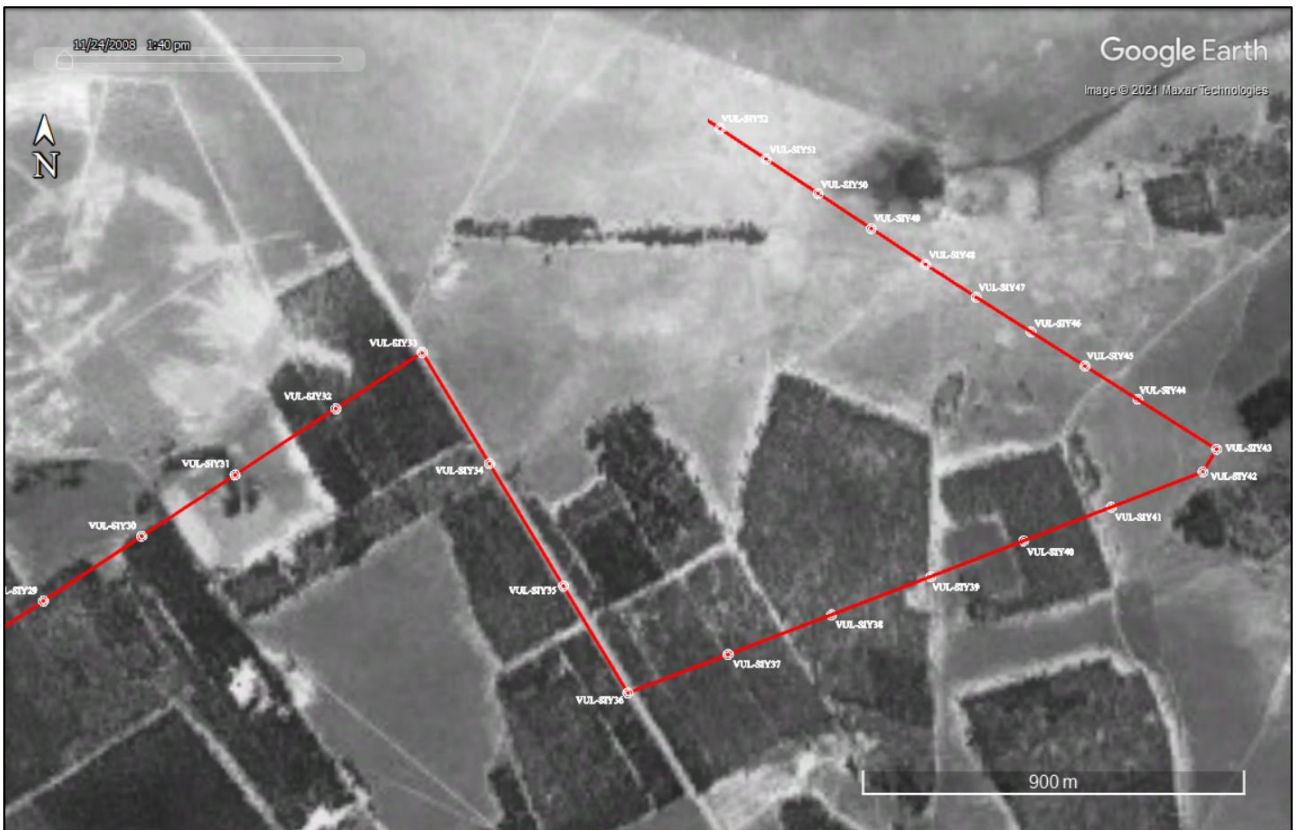
Waypoint	Location	Description	Significance	Grade
356	25° 49' 37.6429" S 29° 08' 10.2048" E	Cement slab	Low	GPC



**Figure 16:** 1971 (498\_11\_003\_00338) aerial photograph overlaid in google Earth and showing the nature of the western end of the study area 50 years ago. Note that the substation was already present but the Hlalanikahle township development to the south was absent.



**Figure 17:** 1971 (498\_11\_003\_00344) aerial photograph overlaid in google Earth and showing the nature of the central part of the study area 50 years ago.



**Figure 18:** 1971 (498\_11\_003\_00344) aerial photograph overlaid in google Earth and showing the nature of the eastern end of the study area 50 years ago. The extensive township development of today is absent.



**Figure 19:** View of the cement floor at waypoint 356.

## 5.5. Statement of significance and provisional grading

Section 38(3)(b) of the NHRA requires an assessment of the significance of all heritage resources. In terms of Section 2(vi), “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. The reasons that a place may have cultural significance are outlined Section 3(3) of the NHRA (see Section 2 above).

No palaeontological resources were seen but the kinds of things that may occur in buried bedrock are deemed to have medium to low cultural significance for their scientific value. Fossils are not expected but should any be found their grading would most likely be GP C for materials in the cover sands or GP A for bedrock fossils.

Graves are deemed to have high cultural significance for their social value. They would be graded IIIA. However, the one possible grave feature recorded here seems very unlikely to be a grave and is thus considered GP C.

## 6. ASSESSMENT OF IMPACTS

The palaeontological impact assessment is contained in the separate palaeontological report by Bamford (2021). The only other impacts considered relevant are impacts to graves. No archaeology was found and, taken in conjunction with the desktop assessment, none is expected. The cultural landscape is largely 20<sup>th</sup> century and of negligible cultural significance. It is compromised by existing electrical facilities and township development and is not deemed worthy of further assessment.

### 6.1. Graves

Table 5 presents an assessment of the potential impacts to graves. Because there is no pylon proposed close to the location of the one potential grave, subsurface impacts are not expected and the only possibility is removal or movement of the stone cairn. Because there is a low likelihood of this happening and a very low likelihood of the site actually being a grave, the probability of impacts occurring is low. Although destruction is a direct and permanent impact, the significance is considered to be **low negative**. The only suggested mitigation is that the location should be mapped and noted as a potentially sensitive location and avoided. There are no fatal flaws.

**Table 5:** *Assessment of impacts to graves for the preferred alternative. They would occur during the construction phase.*

	<b>Before mitigation</b>	<b>After mitigation</b>
Extent of impact	Local	Local
Intensity of impact	Moderate	Low
Duration of impact	Permanent	Permanent
Probability of impact occurring	Low	Low
Significance of impact	Low	Low
Status	Negative	Negative
Reversible	No	
Replaceable	No	
Degree to which impact can be mitigated	High	



Cumulative impacts	Significant cumulative impacts are not expected because of the very low chance of graves actually being intersected during development.
Residual impacts	None expected, although there does remain a very small chance that completely unmarked graves could be intersected during construction.

### 6.1.1. Mitigation

The location of the potential grave must be recorded and noted as a no-go area.

### 6.1.2. Management

Workers on site should be made aware of the possibility of encountering human remains and a careful watch should always be kept during excavations. If any bones are found, work should stop immediately, and the find should be protected and reported to SAHRA for a decision on the way forward. To expedite the process, it is recommended that in such instances an archaeologist be contracted to assess the find on site as soon as possible.

## 6.2. The No-Go alternative

The No-Go alternative would entail the site staying as it presently is. No heritage impacts would be expected (i.e., significance is neutral). Importantly, however, electricity supply in the area would remain constrained by the temporary measures in place and the expected socio-economic benefits would not accrue.

## 6.3. Existing impacts to heritage resources

There are currently no obvious threats to heritage resources on the site.

## 6.4. Levels of acceptable change

Any impact to an archaeological or palaeontological resource or a grave is deemed unacceptable until such time as the resource has been inspected and studied further if necessary. Impacts to the landscape are difficult to quantify but in general a development that visually dominates the landscape from many vantage points is undesirable. Because of the many existing powerlines running through the area and extensive modern development, such an impact is not envisaged from the new additional power line.

# 7. INPUT TO THE ENVIRONMENTAL MANAGEMENT PROGRAM

The environmental management program (EMPr) should note the possibility that the stone cairn at waypoint 355 might be a grave. The site should be mapped in the EMPr and noted as a no-go area for the duration of construction. If the service track associated with the power line avoids this location, then no impacts will occur during operation of the powerline. The EMPr should also note the possibility of encountering fossils, archaeological materials or human remains and include instructions on how to proceed in the event of such finds being made (see management measures

described in Section 6.1.2 above). A chance finds procedure specifically for fossils has been included in Bamford (2021) and should be written into the EMPr.

## **8. EVALUATION OF IMPACTS RELATIVE TO SUSTAINABLE SOCIAL AND ECONOMIC BENEFITS**

Section 38(3)(d) of the NHRA requires an evaluation of the impacts on heritage resources relative to the sustainable social and economic benefits to be derived from the development.

Expected socio economic benefits include:

- The creation of potential jobs and training opportunities for the local workforce, resulting in positive growth for the local economy.
- 1 300 stands will have access to a secure electricity supply. Service delivery will thus be improved in the local Siyanqoba township.
- There will be decreased air pollution, due to the decreased need for the surrounding community to burn solid fuels for cooking and heating purposes.
- A reduction in the release of greenhouse gases will occur because of the reduced burning of solid fuels for cooking and heating purposes.

Overall, these socio-economic benefits outweigh any possible heritage impacts.

## **9. CONCLUSIONS**

Pending the discovery of new finds within the proposed alignment, there are no significant heritage issues. There is always the chance that unmarked burials could be found but these cannot be predicted before the time.

### **9.1. Reasoned opinion of the specialist**

Because the expected impacts are of very low significance, the project should be authorised in full.

## **10. RECOMMENDATIONS**

It is recommended that the project be allowed to proceed but subject to the following recommendations:

- For precautionary reasons, the stone cairn at waypoint 355 must be identified on project maps and protected and avoided during construction;
- The powerline service road must avoid the waypoint 355 area, staying at least 10 m away from the cairn;
- Workers must be alerted to the possibility of uncovering fossils, archaeological materials (e.g. stone artefacts, pottery) or graves and instructed to stop work, protect any finds and report them to the heritage authorities. They may require inspection by an archaeologist.

Such heritage is the property of the state and may require excavation and curation in an approved institution.

## 11. REFERENCES

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- Pelser, A.J. 2014. A Report on a phase 1 AIA For the Proposed Township Establishment On Portion 55 Of The Farm Naauwpoort 335 JS (Command Park Ext.1) Emalahleni, Mpumalanga
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# APPENDIX 1 – Curriculum Vitae



*Curriculum Vitae*

**Jayson David John Orton**

ARCHAEOLOGIST AND HERITAGE CONSULTANT

## Contact Details and personal information:

**Address:** 40 Brassie Street, Lakeside, 7945  
**Telephone:** (021) 789 0327  
**Cell Phone:** 083 272 3225  
**Email:** jayson@asha-consulting.co.za

**Birth date and place:** 22 June 1976, Cape Town, South Africa  
**Citizenship:** South African  
**ID no:** 760622 522 4085  
**Driver's License:** Code 08  
**Marital Status:** Married to Carol Orton  
**Languages spoken:** English and Afrikaans

## Education:

SA College High School	Matric	1994
University of Cape Town	B.A. (Archaeology, Environmental & Geographical Science) 1997	
University of Cape Town	B.A. (Honours) (Archaeology)*	1998
University of Cape Town	M.A. (Archaeology)	2004
University of Oxford	D.Phil. (Archaeology)	2013

\*Frank Schweitzer memorial book prize for an outstanding student and the degree in the First Class.

## Employment History:

Spatial Archaeology Research Unit, UCT	Research assistant	Jan 1996 – Dec 1998
Department of Archaeology, UCT	Field archaeologist	Jan 1998 – Dec 1998
UCT Archaeology Contracts Office	Field archaeologist	Jan 1999 – May 2004
UCT Archaeology Contracts Office	Heritage & archaeological consultant	Jun 2004 – May 2012
School of Archaeology, University of Oxford	Undergraduate Tutor	Oct 2008 – Dec 2008
ACO Associates cc	Associate, Heritage & archaeological consultant	Jan 2011 – Dec 2013
ASHA Consulting (Pty) Ltd	Director, Heritage & archaeological consultant	Jan 2014 –

## Professional Accreditation:

Association of Southern African Professional Archaeologists (ASAPA) membership number: 233

CRM Section member with the following accreditation:

- Principal Investigator: Coastal shell middens (awarded 2007)  
Stone Age archaeology (awarded 2007)  
Grave relocation (awarded 2014)
- Field Director: Rock art (awarded 2007)  
Colonial period archaeology (awarded 2007)

Association of Professional Heritage Practitioners (APHP) membership number: 43

- Accredited Professional Heritage Practitioner

### ➤ **Memberships and affiliations:**

South African Archaeological Society Council member	2004 – 2016
Assoc. Southern African Professional Archaeologists (ASAPA) member	2006 –
UCT Department of Archaeology Research Associate	2013 –
Heritage Western Cape APM Committee member	2013 –
UNISA Department of Archaeology and Anthropology Research Fellow	2014 –
Fish Hoek Valley Historical Association	2014 –
Kalk Bay Historical Association	2016 –
Association of Professional Heritage Practitioners member	2016 –

### **Fieldwork and project experience:**

Extensive fieldwork and experience as both Field Director and Principle Investigator throughout the Western and Northern Cape, and also in the western parts of the Free State and Eastern Cape as follows:

#### Feasibility studies:

- Heritage feasibility studies examining all aspects of heritage from the desktop

#### Phase 1 surveys and impact assessments:

- Project types
  - Notification of Intent to Develop applications (for Heritage Western Cape)
  - Desktop-based Letter of Exemption (for the South African Heritage Resources Agency)
  - Heritage Impact Assessments (largely in the Environmental Impact Assessment or Basic Assessment context under NEMA and Section 38(8) of the NHRA, but also self-standing assessments under Section 38(1) of the NHRA)
  - Archaeological specialist studies
  - Phase 1 archaeological test excavations in historical and prehistoric sites
  - Archaeological research projects
- Development types
  - Mining and borrow pits
  - Roads (new and upgrades)
  - Residential, commercial and industrial development
  - Dams and pipe lines
  - Power lines and substations
  - Renewable energy facilities (wind energy, solar energy and hydro-electric facilities)

#### Phase 2 mitigation and research excavations:

- ESA open sites
  - Duinefontein, Gouda, Namaqualand
- MSA rock shelters
  - Fish Hoek, Yzerfontein, Cederberg, Namaqualand
- MSA open sites
  - Swartland, Bushmanland, Namaqualand
- LSA rock shelters
  - Cederberg, Namaqualand, Bushmanland
- LSA open sites (inland)
  - Swartland, Franschhoek, Namaqualand, Bushmanland
- LSA coastal shell middens
  - Melkbosstrand, Yzerfontein, Saldanha Bay, Paternoster, Dwarskersbos, Infanta, Knysna, Namaqualand
- LSA burials
  - Melkbosstrand, Saldanha Bay, Namaqualand, Knysna
- Historical sites
  - Franschhoek (farmstead and well), Waterfront (fort, dump and well), Noordhoek (cottage), variety of small excavations in central Cape Town and surrounding suburbs
- Historic burial grounds
  - Green Point (Prestwich Street), V&A Waterfront (Marina Residential), Paarl

### **Awards:**

Western Cape Government Cultural Affairs Awards 2015/2016: Best Heritage Project.