



**DEPARTMENT: NGT HERITAGE MANAGEMENT  
SOLUTIONS**

**PROJECT TITLE:**

PROPOSED CONSTRUCTION OF A 15,5KM SINGLE-CIRCUIT BPBH AND KDLO  
INTERCONNECTOR 22KV POWERLINE NEAR BOSHOF

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Heritage Impact Assessment for Proposed Construction  
of a 15,5km single-circuit BPBH and KDLO Interconnector  
22kV powerline near Boshof

**Revision: 01**

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## DECLARATION OF INDEPENDENCE

Nkosinathi Tomose for NGT has compiled this report. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision-making process for the project.

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## **EXECUTIVE SUMMARY**

NGT has been appointed by Zitholele)on behalf of Eskom to conduct a heritage impact assessment (HIA) study for the proposed construction of 15,5km single-circuit BPBH and KDLO Interconnector 22kV powerline in Boshof in the western Free State and on the boarder of the northern Cape Province, South Africa. This report forms part of specialists' inputs required to fulfil the requirements of a CEMPr developed by Eskom. The appointment of NGT is in terms of the National Heritage Resources Act (NHRA), No. 25 of 1999 and the National Environmental Management Act (NEMA), No.107 of 1998 (as amended).

The standard NGT heritage study process entailed conducting a detailed background information search of the receiving environment. This looks at previous studies conducted in and around the proposed study area. Conducting an onsite investigation to identify heritage resources and assess impacts of the proposed development on the identified heritage resources. To make recommendations on how the identified heritage resources should be managed and/or mitigated to avoid them being negatively impacted by development activities.

Based on the results of literature review, field survey and the assessment of identified heritage resources the following conclusions and recommendations are made about the proposed powerline:

### **Conclusions:**

Based on the results of literature review and the survey results the following conclusions are made:

- It is concluded that the survey only identified five Middle Stone Age (MSA) flake scatters that were also out of context.
- No other heritage resources (e.g. built environment, burial grounds and graves or rock art) were found on site.
- It is therefore concluded that there are no archaeological and heritage resources that will be impacted by the proposed development.

### **Recommendations:**

- It is recommended that the responsible authorities, the South Africa Heritage Resources Agency (SAHRA) and the Free State Heritage Resources Authority (FS-PHRA) grant the project a Positive Review Comment.

- The project will not impact on any archaeological or general heritage resources sites and has a small footprint on the land; it traverses the area along existing fence lines in the north and along a road servitude in the south to west.
- The areas that it transverse have been partially disturbed through past construction and agricultural activities in the past.

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## LIST OF ABBREVIATIONS

ACRONYMS	DESCRIPTION
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
ARCH	Archaeological
BEL	Built Environment & Landscape
CRM	Cultural Resource Management
CoJMM	City of Johannesburg Metropolitan Municipality
DEA	Department of Environmental Affairs
ESA	Early Stone Age
FS-PHRA	Free State Provincial Heritage Authority
GDARD	Department of Agriculture and Rural Development
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EIA	Early Iron Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
KNR	Klipriviersberg Nature Reserve
LIA	Late Iron Age
LSA	Late Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act
NGT	Nurture, Grow, Treasure
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

## **TERMS AND DEFINITIONS**

### ***Archaeological resources***

These include:

- 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 artefacts, human and hominid remains and artificial features and structures;
- 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;
- 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 in the Maritimes Zones Act, 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;
- Features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

### ***Cultural significance***

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

### ***Development***

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in the change to the nature, appearance or physical nature of a place or influence its stability and future well-being, including:

- Construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- Carrying out any works on or over or under a place;
- Subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- Constructing or putting up for display signs or boards; any change to the natural or existing condition or topography of land;
- And any removal or destruction of trees, or removal of vegetation or topsoil.

***Heritage resources:*** This means any place or object of cultural significance.

## **1. INTRODUCTION**

### **1.1. Background Information of Project**

NGT has been appointed by Zitholele on behalf of Eskom to conduct an HIA study for the proposed construction of a 15,5km single-circuit BPBH and KDLO Interconnector 22kV powerline in Boshof in the western Free State and on the boarder of the northern Cape Province in Tokologo Local Municipality within Lejweleputswa District, South Africa (*Figure 1*). This report forms part of specialists' inputs required to fulfil the requirements of a CEMPr developed by Eskom. The nature and the length of the proposed development exceed 300m long and triggers an HIA study in terms of Section 38 (1) of the NHRA, No. 25 of 1999 and NEMA, No. 107 of 1998 (as Amended in 2014) and read together with the applicable 2010 EIA regulations.

This study involved a desktop scan and the survey of the affected environment for the proposed 15,5km single-circuit BPBH and KDLO Interconnector 22kV powerline. The aim of the survey is to identify, document and map all cultural resources within the proposed development area (and the 15m servitude); to assess and evaluate their heritage significance and the impact of the proposed project on the identified heritage resources.

### **1.2. Site Name**

BPBH-KDLO 22kV Interconnection Powerline, covering 15.5km in greater Boshof Area herein referred to as "site". The site is located west of Boshof

### 1.3. Locality Map

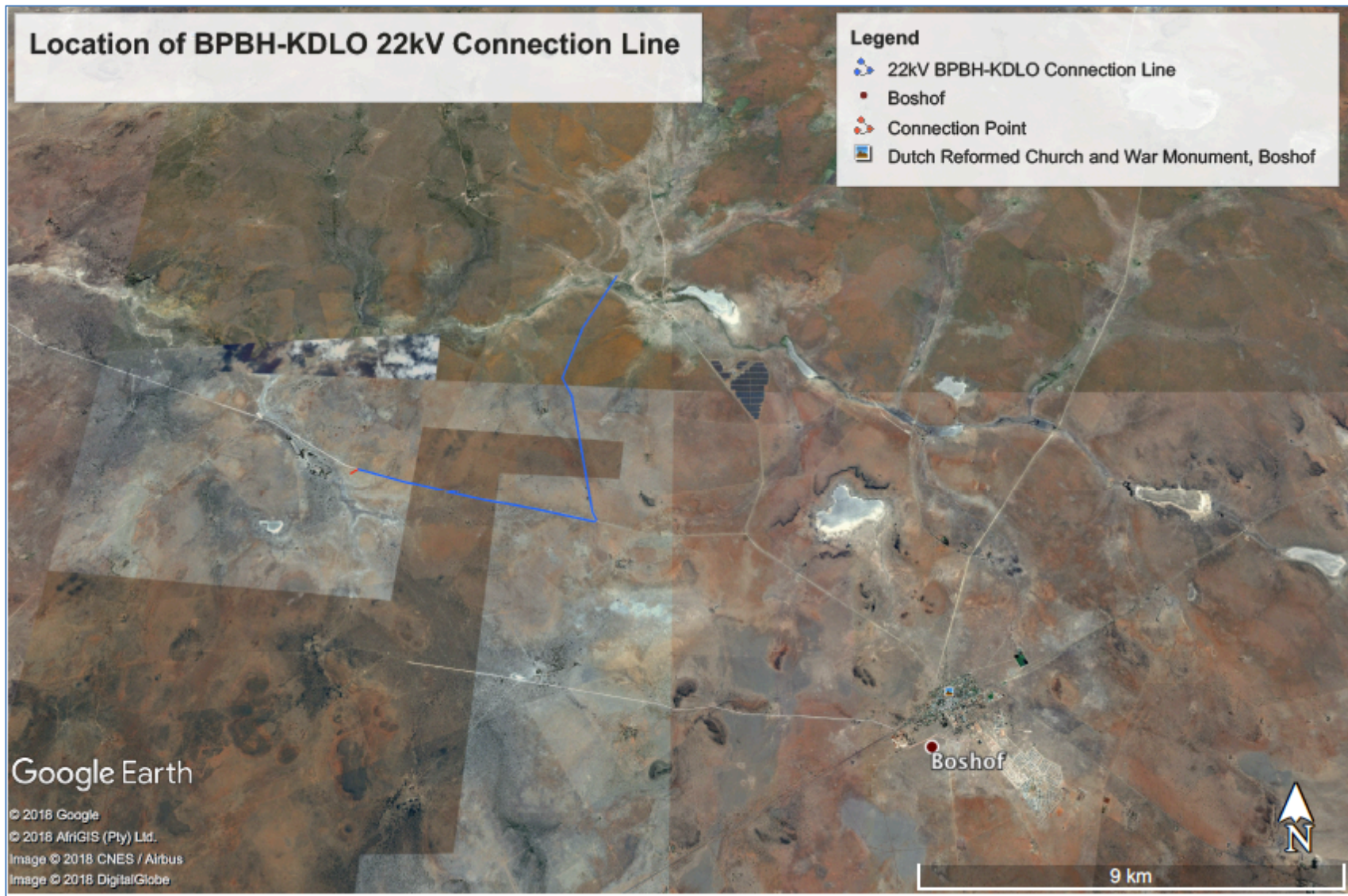


Figure 1-Google Earth map showing the location of the proposed 22kV BPBH-KDLO 22kV Interconnection Powerline

#### **1.4. Terms of Reference for the Appointment of Archaeologist and Heritage Specialist**

The nature and the size (which covers 15.2km in length) of the proposed development exceeds a total linear development of 300m in length, required that a HIA study be conducted. The HIA is conducted in terms of Section 38 (3) of the NHRA, No. 25 of 1999. This prescript of the Act state that: “the responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2) (a): Provided that the following must be included:

- (a) The identification and mapping of all heritage resources in the area affected;
- (b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;
- (c) An assessment of the impact of the development on such heritage resources;
- (d) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- (e) The result of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- (f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- (g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.”

Zitholele appointed NGT as the lead cultural resources management (CRM) consultant to conduct and manage the HIA process. Nkosinathi Tomose, Principal Archaeologist and Heritage Consultant for NGT, conducted the HIA study for the proposed 22kV interconnection line development. The appointment of NGT as an independent CRM firm is in terms of the NHRA, No. 25 of 1999.

### **1.5. Legal Requirements for Completion of the Study**

The NHRA, No. 25 of 1999 sets norms and standards for the management of heritage resources in South Africa. Section 38 (3) of the NHRA, No. 25 of 1999 informs the current HIA study.

## 2. ENVIRONMENTAL CONTEXT AND PRESENT IMPACT OF THE DEVELOPMENT SITE ON THE REGION

### 2.1. Project Location

The project area is situated west of the town of Boshof in the western Free State and on the boarder of the northern Cape Province in Tokologo Local Municipality within Lejweleputswa District, South Africa.

Table 1- Site Location and Property Information

Location of Rietvlei Farm No 101/IR	
Receiving Environment	BPBH-KDLO 22kV Interconnection Powerline (covering various farms)
Town	Boshof
Responsible Local Authority	Tokologo Local Municipality
Magisterial District	Lejweleputswa (white stone)
Region	Western Free State on the boarder of Northern Cape
Country	South Africa
Site centre GPS coordinates	<ul style="list-style-type: none"> <li>• Start point: 28° 26' 10.81" S and 25° 09' 33.48" E</li> <li>• First curve: 28° 27' 52.13" S and 25° 08' 44.24" E</li> <li>• Second curve: 28° 30' 01.56" S and 25° 09' 20.26" E</li> <li>• End point: 28° 29' 20.10" S and 25° 05' 37.01" E</li> </ul>

### 2.2. Description of the Affected Environment

#### Access to site:

- The development area is located east of the N12 linking Kimberly (south), Potchefstroom and Johannesburg in the north.
- It is situated west of the town of Boshof and was access via a gravel road from the N12

The receiving environment is generally flat with some dolerite outcrops in the north towards the powerline start point (Figure 2). It runs parallel to a game farm and game farm fence in the north up to the southern section of the line on the second curve (Figure 3 & 4). On the southern end of the powerline and long the gravel road to Windsorton the line falls within former agricultural plough fields (Figure 4) and it connects to existing distribution line (Figure 6).





Figure 2- Dolerite outcrops situated north of the site and south of the area where the scatters were found



Figure 3- Surveyor peg in an area concentrated with calcrete (this area was extensively surveyed)





Figure 4- Game fence that runs parallel to the proposed interconnection line on the western side of the line. Note the surveyor pegs as pointed to using red arrows



Figure 5- Receiving environment on the southern and western end of the interconnection line. The red arrow points to the gravel road running parallel and north of the line



*Figure 6- Existing powerline that the interconnection line it will connect to*

The following chapter outline the methodology we have used to assess the current site impacts and cumulative impacts that will result from the proposed project on the identified historic sites.

### **3. METHODOLOGY**

#### **3.1. Approach to the Study**

Nkosinathi Tomose, is a Director and Principal Archaeologist and Heritage Consultant for NGT. He is responsible for the compilation of the current HIA report. This HIA is conducted for the proposed construction of an 22kV power distribution line west of the town of Boshof in the Boshof in the western Free State and on the boarder of the northern Cape Province in Tokologo Local Municipality within Lejweleputswa District, South Africa.

#### **3.2. Step I – Literature Review (Desktop Phase)**

Background information search for the proposed development took place following the receipt of appointment letter from the client. Sources used included, but not limited to published HIA studies, academic books and the internet about the site and the broader area in which it is located. Interpretation of legislation (the NHRA, No. 25 of 1999).

#### **3.3. Step II – Physical Survey**

- The survey of the proposed development area was conducted by Nkosinathi Tomose (Assisted by Mlaweuli Tomose – 8 year old son bailed out after 2.5km walk) on the 9<sup>th</sup> April 2018 and resulted to the development of the current report - Revision 01 HIA report.
- The survey of the line was conducted on foot and the site was access using a bakkie.
- The aim of the surveys was to identify archaeological and heritage sites and resources within the area proposed for construction of the 22kV power distribution line and the 15m servitude
  - To record and document them using applicable tools and technology;
  - The various physical surveys were deemed necessary since desktop study yielded information about presence of archaeological and heritage resources within KNR and the surrounding environment;
- The following technological tools were used for documenting and recording identified resources on site:

- Garmin GPS (i.e. Garmin 62s) – to take Lat/Long coordinates of the identified sites and to track the site.
- Canon SLR – to take photos of the affected environment and the identified sites.
- The locality map and KML file from the client was used to identify proposed development footprint

### 3.4. Site Significance Rating

The following site significance classification minimum standards as prescribed by the South African Heritage Resources Agency (SAHRA) (2006) and approved by the Association of Southern African Professional Archaeologists (ASAPA) for the Southern African Developing Community (SADC) region were used to grade the identified heritage resources or sites.

*Table 2-Site significance classification standards as prescribed by SAHRA*

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	High Significance	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	High Significance	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	-	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium Significance	Recording before destruction
Generally Protected C (GP.A)	-	Low Significance	Destruction

### 3.5. Step III – Data Consolidation and Report Writing

The final step involved the consolidation of the data collected using the various sources as described above and the results of the evaluation and assessment process:

- This involves the manipulation of Shapefiles/KMZ files through Goggle Earth Pro to develop maps
- Evaluation and grading of sites/resources significance
- Assessing potential impacts of the project on the identified heritage resources
- Discussing the findings and concluding on whether or not the will be negative or positive impacts on the cultural resources resulting from the proposed project
- Making recommendations on management and mitigation measures that should be applied to mitigate or minimise impacts on heritage resources.

## 5. LITERATURE REVIEW

### 5.1. Archaeological Background of the Area

The developmental area is found just north-west of the town of Boshof, within the Free State Province, on the Free State/Northern Cape Provincial boundary. The area falls within the flat, arid, western Free State Grassland/Northern Cape Thornveld region (Morris 2014). There are some sites of significance close to this area. In the vicinity of the proposed power line, archaeological surface material was found which could be of significance as presently discussed. The area is known as the Hutton-Sands covered, calcrete substrate (after Morris 2014). There will be surface traces and erosion areas where archaeological evidence could be found which will add to our current knowledge of the archaeology of the area (Morris 2014).

This part of the country is known to be rich in Stone Age archaeology. The closest, most reliable dates for the Stone Age in the area come from the Wonderwerk Cave and Kuruman Hills in north Kimberley. Here, the dates for the Early Stone Age (ESA) are represented by the

- Oldowan >1.8-1.1 mya,
- Acheulean >1 mya,
- Fauresmith >270 – 500 kya.

The Middle Stone Age (MSA) at Wonderwerk dates to > 70 – 220 kya. Finally the Later Stone Age (LSA) is found at >0.9 - 12.5 kya (Beaumont and Vogel 2006; Horowitz and Chazan 2015). In the vicinity of the proposed powerline, MSA stone tool scatter was observed. This scatter could be related to a more complex and extended MSA assemblage. Due to the increased interest in understanding the beginnings of symbolic behaviour among humans, the ESA and MSA have become hotly contested areas of research all over the world (Watts et al. 2016). The surface scatter of stone tools found near the proposed site for the power line should be examined further before being destroyed or disturbed. It could prove to be part of a more important assemblage. It would be best to consult Deacon (nd) and Whitelaw (1997) for a sound analysis of how to determine the importance of archaeological sites.

The most significant rock art in the area is found at Stowlands, near Boshof (Taçon and Ouzman 2004). This has been reported as the only significant stone age site in the area (Hutten 2011). This site has well over 300 engraved images on a spread of boulders, representing the art of LSA hunter-gatherers in the area. There is also a scatter of LSA stone tools (Taçon and Ouzman 2004). David Morris (2014:8) mentions the rock art sites found at nearby springs: Rooipoort, Wildebeestkuil, and Driekopseiland (the final one is found on an andesite pavement) (Morris 1988, 1990, 2002, 2012). These engraved sites represent the art of both the hunter-gatherers, as well as the geometric arts of the Khoe-speaking pastoralists who would have entered the region in the last 2000 years (Mitchell 2002). However, distinguishing the archaeological difference between the communities of Khoe-speaking pastoralists versus San hunter-gatherers in South Africa is difficult (Sadr 2003, Mitchell and Whitelaw 2005). It is predicted that some parts of this area with clusters of boulders will have rock engravings older than 100 years. However, none have been observed in the vicinity of the proposed powerline. Although the Iron Age is found in the general area (Huffman 2007), no Iron Age sites are reported in the proposed area of the powerline construction.

## **5.2. Historical Period**

There are some significant historical events dating from the arrival of Europeans into the interior in the vicinity of Boshof town. When the Voortrekkers moved north, some settled just north of the Orange River, on the boundary between the established Cape Colony, and what was to become the Zuid Afrikaner Republiek (ZAR) (<http://www.sahistory.org.za/place/free-state-province>). One of the towns which was settled in was the town of Boshof, on the boundary of the two nations. The town was founded on the farm Van Wyksvlei in 1855 by Dr. Andrew Murray (Erasmus 1995).

The town's most significant historical period was its involvement in the Boer War in the year 1900 (Evan <http://www.sahistory.org.za>). Just outside the town, the Battle of Boshof was fought on the 5th of April 1900 on the farm Tweefontein, wherein the French General De Villebois-Mareul was killed (Grobler 2004). Further, between April and May 1900 several small battles around the town occurred, followed by guerilla skirmishes in the 1900 – 1902 years (Farwell 1977, Cloete 2000). It was reported that the blockhouse line between Boshof and Hoopstad was completed by April 1902 (Hutten 2011). Thus, another completed HIA on the area warns that remnants of these blockhouses may still be found in the vicinity (Hutten 2011: 9). Due to the widespread nature of the Boer War activity in the area, care must be taken when surveying the area for the construction of the powerline.



## 6. SURVEY RESULTS

The background information search yield information about known archaeological and heritage resources in the area in and around the receiving environment. The physical survey focused on the area proposed for the 22kV power line and the 15m servitude. The survey yielded five MSA scatters did not result to any significant finds of archaeological or heritage resources. The only resources that were discovered are MSA scatter were found north of the power line.

*Table 3-MSA Scatter 01 (No impact assessment since these do not form a site)*

<b>Site Name:</b>	<b>MSA Scatter 01</b>
<b>Type:</b>	Archaeological Resources
<b>Density:</b>	Low Density
<b>Location/GPS Coordinates:</b>	28° 26 28.7''S 25° 09' 21.7''
<b>Approximate Age:</b>	Over 90k.ya
<b>Applicable NHRA Section:</b>	Section 35
<b>Description:</b>	These are two MSA fake scatters collected outside a layer of calcrete on the northern portion of the proposed powerline (Figure 7). They are made of dolerite which is now weathered.



*Figure 7 -Two MSA flake scatter (grouped together for purposes of photography)*



Table 4- MSA Scatter 02 (No impact assessment since these do not form a site)

<b>Site Name:</b>	<b>MSA Scatter 02</b>
<b>Type:</b>	Archaeological Resources
<b>Density:</b>	Low Density
<b>Location/GPS Coordinates:</b>	28° 27' 11.4"S 25° 08' 58.0"
<b>Approximate Age:</b>	Over 90k.ya
<b>Applicable NHRA Section:</b>	Section 35
<b>Description:</b>	
These are three MSA flake scatters, they are located south east of MSA scatter 01 and on the end of the power line servitude (Figure 8).	



Figure 8- Three MSA flake scatter (grouped together for purposes of photography)

## 7. DISCUSSION

The region is known for Stone Age and rock art archaeological resources. However, no significant archaeological. The areas to the north of the powerline has dolerite outcrops; these were extensively surveyed for rock engravings, but no rock art resources were identified. The map below show the distribution of the MSA scatter identified or rock art resources were identified within the receiving environment. The survey also considered the possibility of burial grounds and graves (BGG) as well as built environment and landscape (BEL) features. None of these resources were identified within the receiving environment for the proposed interconnection line. The study of the Boshof Solar Energy farm, which is the closest HIA conducted near the current study also yielded MSA scatter. In planning the survey one anticipated that MSA sites will be found in the receiving environment. The MSA scatter identified within the receiving environment for the proposed 22kV interconnection line are not significant and situated out of context; they do not warrant any further studies of Phase HIA II mitigation.

Below are conclusions and recommendation made about the proposed 22kV interconnection line.

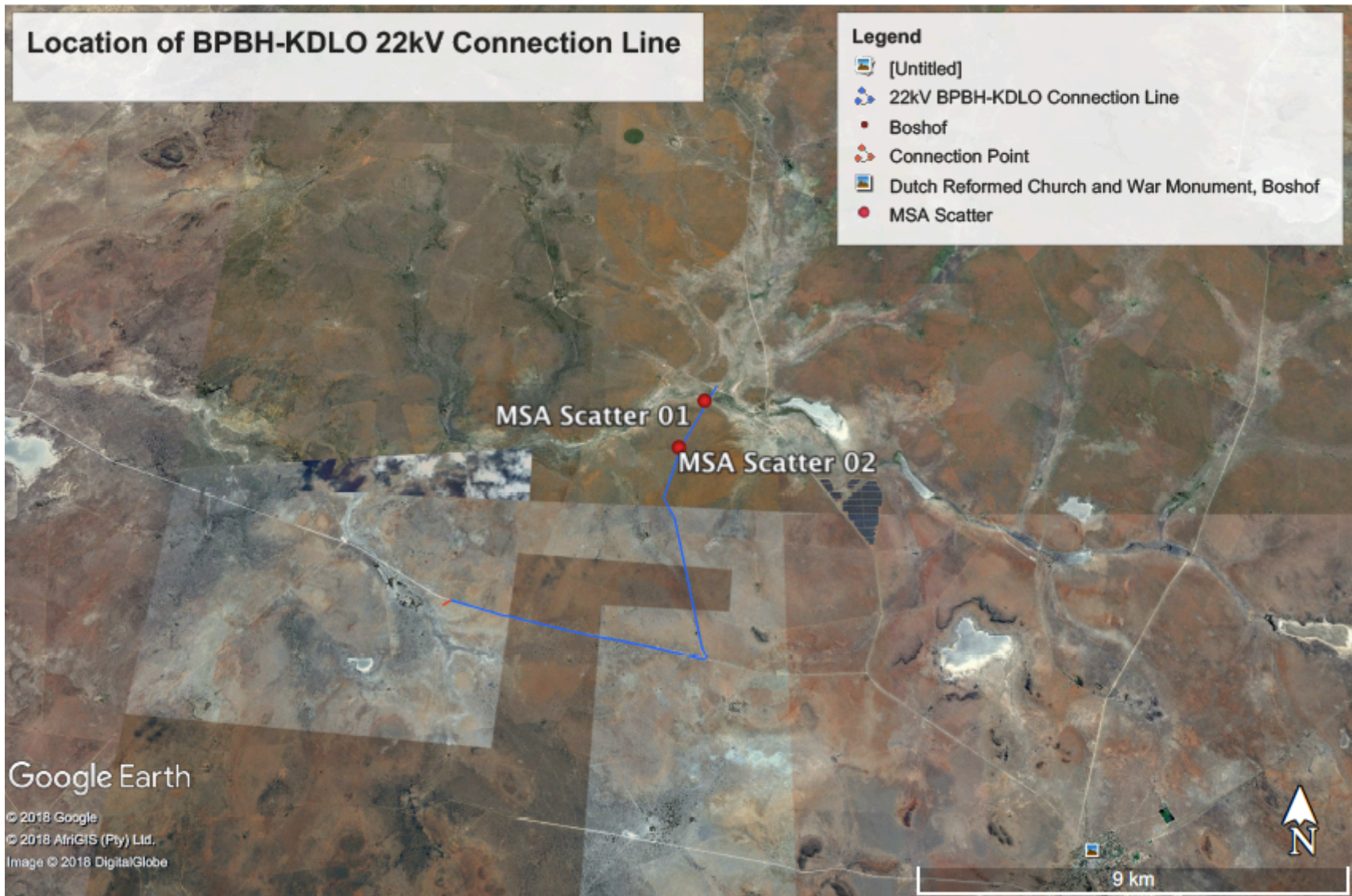


Figure 9- Google Earth map showing the location of the 5 MSA scatter in relation to the powerline

## 8. CONCLUSION

Based on the results of literature review and the survey results the following conclusions are made:

- It is concluded that the survey only identified five Middle Stone Age (MSA) flake scatters that were also out of context.
- No other heritage resources (e.g. built environment, burial grounds and graves or rock art) were found on site.
- It is therefore concluded that there are no archaeological and heritage resources that will be impacted by the proposed development.

## 9. RECOMMENDATIONS

The following recommendations are made about known archaeological and cultural heritage resources on site:

- It is recommended that the responsible authorities, the South Africa Heritage Resources Agency (SAHRA) and the Free State Heritage Resources Authority (FS-PHRA) grant the project a Positive Review Comment.
- The project will not impact on any archaeological or general heritage resources sites and has a small footprint on the land; it traverses the area along existing fence lines in the north and along a road servitude in the south to west.
- The areas that it transverse have been partially disturbed through past construction and agricultural activities in the past.



## 10. REFERENCES

- Beaumont, P.B. and J.C. Vogel. [On a timescale for the past million years of human history in central South Africa](#). South African Journal of Science. 102:217 - 227
- Cloete, P.G. 2000. **The Anglo-Boer War: A chronology**. Cape Town: ABC Press
- Deacon, J. nd. **Archaeological Impact Assessment - specialist input to planning and design**. Unpublished notes compiled for the National Monuments Council.
- Erasmus, B.P.J. 1995. **Op pad in Suid-Afrika**. Johannesburg: Jonathan Ball Publishers.
- Evans, M.F.M. 1999. **Encyclopedia of the Boer War**. British Library Cataloguing in Publication Data. <http://www.sahistory.org.za/archive/encyclopedia-boer-war-martin-f-marix-evans>. Accessed 12 April 2018.
- Farwell, B. 1977. **The Great Boer War**. London: Allen Lane
- Grobler, J.E.H. 2004. **The War Reporter**. Jeppestown: Jonathan Ball Publishers
- Horowitz, L.K. and M.Chazan. 2015. **Past and Present at Wonderwerk Cave (Northern Cape Province, South Africa)**. African Archaeological Review. 32(4):595 – 612.
- Huffman, T.N. 2007. **Handbook to the Iron Age. The Archaeology of Pre-Colonial Farming Societies in Southern Africa**. Durban: University of KwaZulu-Natal Press.
- Hutten, M. 2011. **Heritage Impact Assessment for the Proposed Boshof Solar Park on the farm Rabenthal north of Boshof, Free State Province. Compiled for Africa Geo-Environmental Services**.
- Mitchell, P. 2002. **The Archaeology of Southern Africa**. Cambridge: Cambridge University Press.
- Mitchell, P. and G. Whitelaw. 2005. **The Archaeology of Southernmost Africa from c200 BP to the early 1800's: A review of recent research**. The Journal of African History. 46(2):209 – 241.
- Morris, D. 1988. **Engraved in place and time: A review of variability in the rock art of the Northern Cape and Karoo**. South African Archaeological Bulletin 43:109-121.
- Morris, D. 1999. **A Phase 1 Archaeological Impact Assessment: Proposed Combined Treatment Plant and Associated Haul Roads, Kimberley**. Unpublished Report to De Beers Consolidated Mines Ltd.
- Morris, D. 2002. **Palaeoenvironmental, Archaeological and Historical Aspects of Benfontein and Alexandersfontein Pan**. Report for De Beers.
- Morris, D. 2011. **Wag'nBiekiespan Solar Energy Facility: Specialist Input for the Environmental Management Programme for the Proposed Wag'nBiekiespan Solar Energy Facility near Boshof, Free State Province: Archaeology**. Report prepared for Savannah Environmental.

- Morris, D. 2014. **Proposed Boundary Solar Energy Facility on the farm Karreeboom 1716, east of Kimberley, in the Tokologo Local Municipality, Free State: Heritage Impact Assessment.** McGregor Museum. Report prepared for Rodicon Trading and Investments.
- Sadr, K. 2003. **The Neolithic of Southern Africa.** The Journal of African History. 44(2):195 – 202.
- Taçon, P.S.C. and S.Ouzman. 2004. **Worlds within stone: the inner and outer rock-art landscapes of northern Australia and southern Africa.** In; Chippindale, Christopher, C. and George H. Nash (eds.). The figured landscapes of rock-art:39-68. Cambridge: Cambridge University Press.
- Watts, I., Chazan, M. and J. Wilkins. 2016. **Early Evidence for Brilliant Ritualized Display: Specularite Use in the Northern Cape (South Africa) between ~500 and ~300 Ka.** Current Anthropology. 57(3): 287- 310.