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ARCHAEOLOGICAL AND CULTURAL HERITAGE IMPACT ASSESSMENT PHASE I WALK DOWN SPECIALIST REPORT FOR THE CONSTRUCTION AND OPERATIONAL EMPR FOR THE PROPOSED APPROXIMATELY 230 KILOMETERS 400KV POWER LINE FROM THE EXISTING ESKOM JUNO SUBSTATION TO THE EXISTING ESKOM GROMIS SUBSTATION IN THE WESTERN AND NORTHERN CAPE PROVINCES RESPECTIVELY.

MAY, 2016

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Final report	--

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DECLARATION

ABILITY TO CONDUCT THE PROJECT

Munyadziwa Magoma is a professional archaeologist, having obtained his BA degree in Archaeology and Anthropology at University of South Africa (UNISA), an Honours degree at the University of Venda (UNIVEN), and an Masters degree at the University of Pretoria (UP). He is an accredited Cultural Resource Management (CRM) member of the Association for southern African Professional Archaeologists (ASAPA) and Amafa aKwaZulu-Natali. Munyadziwa is further affiliated to the South African Archaeological Society (SAAS), the Society of Africanist Archaeologists (SAfA), and the International Council of Archaeozoology (ICAZ). He has more than seven years' experience in heritage management, having worked for different CRM organisations and government heritage authorities. As a CRM specialist, Munyadziwa has completed well over hundred Archaeological Impact Assessments (AIA) for developmental projects situated in several provinces of the Republic of South Africa. The AIAs projects he has been involved with are diverse, and include the establishment of major substation, upgrade and establishment of roads, establishment and extension of mines. In addition, he has also conducted Heritage Impact Assessments (HIAs) for the alteration to heritage buildings and the relocation of graves. His detailed CV is available on request.

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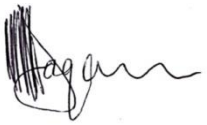

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EXECUTIVE SUMMARY

Introduction and Background

Vhubvo Archaeo-Heritage Consultant Cc has been requested by Nsovo Environmental Services to conduct Archaeological and Cultural Heritage Phase I EMP Walk down for the proposed operation and construction of approximately 230km 400Kv power line from Eskom Juno Substation to Eskom Gromis Substation located within the jurisdiction of both Western and Northern Cape Province. The aim of the study was to entirely corroborate the impact on archaeological and heritage sites that were supposed during the Phase I Heritage scoping conducted by Hall (2006), and also to identify and document other archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and any structure of historical significance that may be affected by the proposed construction of pylon position, these will in turn assist the developer in ensuring proper conservation measure in line with the National Heritage Resource Act, 1999 (Act 25 of 1999).

The findings of this study have been entirely informed by desktop study, field survey and verbal discussion conducted with locals. The desktop study was undertaken through SAHRIS for previous Cultural Heritage Impact Assessments conducted in the region of the proposed development. In addition, searches where done with other scientific search engine as well as with the library for researches that had been carried out in the area over the past years. From these studies, it became clear that the landscape of the northern and southern Namaqua is affluent of archaeological and historical sites covering a long span of human history. However, the scenery of the area proposed for development as it will be discussed in detail in this report makes it difficult to identify archaeological sites confidently.

Need of the Project

Eskom is facing serious constrains to meet the needs of the nation due to growth rates of the economy. Like many other region in the country, the Cape District is faced by serious electricity problem. In the Western Cape Province for example, the local growth rates exceed the national average. In addition, Koeberg power station is also requiring downtime. Eskom is thus responding to this situation by expanding generation and distribution capacity of electricity. This will be done in many ways and will involve among others construction of two Open Cycle Gas Turbine power stations. These power stations would thus supply additional power during periods of peak electricity usage.

Receiving Environment and Survey of the Area

The proposed development is a linear track and is located in two provinces, Northern and Western Cape and transverse over several local and district municipality covering an area of approximately 230km, from Gromis substation in the Northern Cape to Juno substation in Western Cape. In general, this development is located in the area commonly known as Namaqua District. From Eskom Gromis

substation the line crossways on an area which is by the shoreline, and will slantways agricultural and deserted landscape until it reaches its destination at Eskom Juno substation. In short, this power line will traverses over an arid western side of the Republic of South Africa ranging from Namaqualand outcrops, coastal flatlands and mostly on sand dunes, as well as Namaqua National Park and area demarcated for mining purposes, some of these area are rehabilitated land. Furthermore, it also transverses over major river, wetland features as well as perennial water stream. From Juno, the power line extends parallel other existing power lines. However, it substantially diverts onto the new escarpment establishing a new corridor. Nonetheless, in order to assertion that the proposed development do not negatively impact on archaeological, graves and historical sites, the walk down of all the area (sites) proposed for pylon position and servitudes was conducted, with emphasis on potential area that can yield archaeological, historical and graves sites. Thus, the walk down constitutes walking the line corridor and tower position. The area on which attention was intended included rocky outcrops and mountainous areas, erosion dongas and unnatural clusters of vegetation. Although variety of cultural heritage sites are known to exists in Namaqua, the prevailing heritage resources in this area relate to colonial settlers portrayed through built environment, as well as the history of the Nama speaking people.

Methodological Approach

The field survey lasted from the 1st to the 15th of March 2016, and it was adjourned due to issue related to access. Thus, most of the area is sand dunes which make it almost impossible to access, and henceforth a helicopter was suggested, and the survey was thus completed by a helicopter from the 12th of April to the 15th of April 2016. An archaeologist from Vhubvo, along with other specialists conducted the survey. The landscape of every pylon position was explained and recorded photographically (see Table 2). As above said, the aim of the survey was to express the significance of heritage resources that may be found in the proposed area, as well as to be able to determine whether the proposed project was feasible or not, from an archaeological point of view. As a supplement to the survey, oral interview was initiated with farm owners. The oral interviews aim to understand the cultural landscapes and/ or intangible heritage of the proposed area.

Research Background Studies

Archaeological Sites

Although the Namaqua area is rich of archaeological sites, it has until recent remained unknown to archaeologists in the country. The first studies of the area can be accredited to Robershaw (1977) and Webley (1984). After these researches it became clear that the dry areas of the Namaqua were astonishingly archaeologically rich. The primary inhabitants of Namaqua were probably Khoi-San – the ancestors of the present day Nama-speakers. Hundreds of Stone Age archaeological sites have since been documented in the wider area of the Namaqua (Parkington and Hart 1991; Parkington and Poggenpoel 1990; Parkington and Hart 1993; Halkett and Hart 1997; Hart and Lanham 1997; Penn

1995; Ross 2003; Steenkamp 1975). Nonetheless, few archaeological impact assessments have yielded several stone artefacts close to the proposed area. These have been documented by amongst others Hart (2007); Kaplan (2010); Mackay *et al. (*2010); Magoma (2014); Orton (2010a, 2010b, 2011, 2012, 2013); Orton and Hart (2011); Orton *et al.* (2011). Most of these Stone Age tools are generally in poor context, and do not constitutes a site. Researches in the area have revealed that scattered Stone material are found in numbers, however, they remain hidden under the sand, and tend to be seen where the Aeolian sands have eroded, exposing the underlying dorbank layers (Hart 2006). Chances of finding Stone tools during construction stages in the area are thus considered a possibility.

Graves and Burials

Most of the graves in the Namaqualand have been documented in the coastline, very few have been documented inland (Dewar 2008; Jerardino *et al.* 1992; Morris 1992). Farm graveyards are known to exist in the area throughout, however, these are marginal since majority of the farms do not have graveyards, and farm owners (and workers) are buried in the nearest town graveyard (Hart 2006). Possibility of exposing graves (or its content) in this area is considered very low.

Built Environment

People were first granted farms in this area from the 19th century, as a result, historical resources predating this era are rare (Hart 2006). Farm structures with historical significance are as a result found throughout the area (Orton and Hart 2011). However, these are limited to farm houses.

Restrictions and Assumptions

As with any survey, archaeological materials may be under the surface and therefore unidentifiable to the surveyor until they are exposed once construction resume. As a result, should any archaeological/ or grave site be observed during construction stage, a heritage specialist monitoring the development must immediately be notified. In the mean time, no further disturbance may be made until such time as the heritage specialist has been able to make an assessment of the find in question. It is the responsibility of the contractor to protect the site from publicity (i.e., media) until all assessments are made.

Table 1: Possibility of archaeological/ Heritage materials on sites.

Landscape type	Description	Occurrence still possible	Likely occurrence
Archaeology	Early, Middle and Late Stone Age; Iron Age;	Yes Yes	Rather Likely Chance find
Burial and Graves	Pre-colonial burials; Graves of victims of conflict; Graves older than 100 years; Graves older than 60 years; Graves younger than 60 years;	Yes	Likely
Built Environment	Formal public spaces; Historical structures; Area associated with social identity/ displacement;	Yes	Likely
Historic	Historical farm yards; Historical farm workers villages;	Yes	Likely

Farmland	Irrigation furrows; Historical routes; Distinctive types of planting;		
Landscape usage	Sites associated with living heritage e.g., initiation school sites; Sites of political conflict; Sites associated with a historic event/ person;	Yes	Unlikely
Historic rural Town	Historic mission settlements;	Yes	Likely

Survey Findings

The Archaeological and Cultural Heritage Phase I walk-down of the construction and operational EMPR for the proposed 230km Juno-Gromis 400kv power line has identified isolated Stone tools, and historical objects on the proposed line servitudes. Except for tools which were noted on one tower position, none of these (isolated tools and historical objects) was documented on the exact site proposed for pylon. Stone tools are almost ubiquitous in the wider region of Namaqualand, their unavailability in the proposed area is however unexpected, impacts to archaeological objects are unlikely next to the shoreline due to sparse nature of human settlement away from the coast. The Stone tools, chiefly associated with ancestors of the San and Khoekhoen were only noted in area where the Aeolian sands have eroded, exposing the underlying layers. Conversely, historical sites with mostly built environment were noted in the line servitudes. In addition, grave sites were also documented, however these were located away from the proposed line servitudes. It is important to note that very few sites were noted in the proposed area, for easy reference, a table detailing the findings and recommendations have been offered on Page 20.

Recommendations and Discussions

In compliance with the National Heritage Legislature, there was no observable development activities associated with the proposed project.

It is recommended that an archaeological monitoring exercise be undertaken by an archaeologist during construction of pylon No. 176-191, 540-541 and 573. This will ensure that no materials are destroyed or damaged. The developer is reminded that unavailability of archaeological materials (e.g., pottery, stone tools, remnants of stone-walling, graves, etc) and fossils does not mean absentee, archaeological material might be hidden underground, and as such the client is reminded to take precautions during construction.

Pre-construction education and awareness training

Prior to construction, contractors should be given training on how to identify and protect archaeological remains that may be discovered during the project. The pre-construction training should include some limited site recognition training for the types of archaeological sites that may occur in the construction areas. Below are some of the indicators of archaeological site that may be found during construction:

- Flaked stone tools, bone tools and loose pieces of flaked stone;
- Ash and charcoal;
- Bones and shell fragments;
- Artefacts (e.g., beads or hearths);
- Packed stones which might be uncounted underground, and might indicate a grave or collapse stone walling.

In the event that any of the above are unearthed, construction on the affected pylon site should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist or SAHRA officer should be contacted immediately. In the meantime, it is the responsibility of the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached. Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the endorsement of SAHRA.

Conclusions

Although there was no archaeological site documented in the area proposed for pylon position, isolated tools were noted, as well as historical structures. These are of medium significant and monitoring should be partitioned whenever construction is happening around them. If such measures are implemented successfully, there would be no objection to the proposed operation and construction of approximately 230km 400Kv power line from Eskom Juno Substation to Eskom Gromis Substation.

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ACRONYMS AND ABBREVIATIONS

AIA	Archaeological Impact Assessment
EMP	Environmental Management Plan
HIA	Heritage Impact Assessment
LIA	Late Iron Age
MIA	Middle Iron Age
EIA	Early Iron Age
HMP	Heritage Management Plan
LSA	Late Stone Age
MSA	Middle Stone Age
ESA	Early Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Authority
SAHRA	South African Heritage Resources Agency

GLOSSARY OF TERMS

The following terms used in this Archaeology are defined in the National Heritage Resources Act [NHRA], Act Nr. 25 of 1999, South African Heritage Resources Agency [SAHRA] Policies as well as the Australia ICOMOS Charter *(Burra Charter)*:

Archaeological Material: remains resulting from human activities, which are in a state of disuse and are in, or on, land and which are older than 100 years, including artifacts, human and hominid remains, and artificial features and structures.

Artefact: Any movable object that has been used, modified or manufactured by humans.

Conservation: All the processes of looking after a site/heritage place or landscape including maintenance, preservation, restoration, reconstruction and adaptation.

Cultural Heritage Resources: refers to physical cultural properties such as archaeological sites, palaeolontological sites, historic and prehistorical places, buildings, structures and material remains, cultural sites such as places of rituals, burial sites or graves and their associated materials, geological or natural features of cultural importance or scientific significance. This include intangible resources such religion practices, ritual ceremonies, oral histories, memories indigenous knowledge.

Cultural landscape: "the combined works of nature and man" and demonstrate "the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external".

Cultural Resources Management (CRM): the conservation of cultural heritage resources, management, and sustainable utilization and present for present and for the future generations

Cultural Significance: is the aesthetic, historical, scientific and social value for past, present and future generations.

Chance Finds: means Archaeological artefacts, features, structures or historical cultural remains such as human burials that are found accidentally in context previously not identified during cultural heritage scoping, screening and assessment studies. Such finds are usually found during earth moving activities such as water pipeline trench excavations.

Compatible use: means a use, which respects the cultural significance of a place. Such a use involves no, or minimal, impact on cultural significance.

Conservation means all the processes of looking after a place so as to retain its cultural significance.

Expansion: means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.

Grave: A place of interment (variably referred to as burial), including the contents, headstone or other marker of such a place, and any other structure on or associated with such place.

Heritage impact assessment (HIA): Refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, plan, programme or policy which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. The HIA includes recommendations for appropriate mitigation measures for minimising or avoiding negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

Historic Material: remains resulting from human activities, which are younger than 100 years, but no longer in use, including artifacts, human remains and artificial features and structures.

Impact: the positive or negative effects on human well-being and / or on the environment.

***In situ* material:** means material culture and surrounding deposits in their original location and context, for instance archaeological remains that have not been disturbed.

Interested and affected parties Individuals: communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by the proposal or activity and/ or who are concerned with a proposal or activity and its consequences.

Interpretation: means all the ways of presenting the cultural significance of a place.

Late Iron Age: this period is associated with the development of complex societies and state systems in southern Africa.

Material culture means buildings, structure, features, tools and other artefacts that constitute the remains from past societies.

Mitigate: The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action.

Place: means site, area, land, landscape, building or other work, group of buildings or other works, and may include components, contents, spaces and views.

Protected area: means those protected areas contemplated in section 9 of the NEMPAA and the core area of a biosphere reserve and shall include their buffers.

Public participation process: A process of involving the public in order to identify issues and concerns, and obtain feedback on options and impacts associated with a proposed project, programme or development. Public Participation Process in terms of NEMA refers to: a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters.

Setting: means the area around a place, which may include the visual catchment.

Significance: can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgments and science-based criteria (i.e. biophysical, physical cultural, social and economic).

Site: a spatial cluster of artifact, structures, organic and environmental remains, as residues of past human activity.

1. Introduction

At the request of Nsovo Environmental Services, Vhubvo Archaeo-Heritage Consultant Cc conducted an Archaeological and Cultural Heritage Phase I Walk down for the proposed operation and construction of approximately 230km 400Kv power line from Eskom Juno Substation to Eskom Gromis Substation located within the jurisdiction of both Western and Northern Cape Province.

2. Sites Location and Description

The proposed development is a linear track and is located in two provinces, Northern and Western Cape and transverse over several local and district municipality covering an area of approximately 230km, from Gromis substation in the Northern Cape to Juno substation in Western Cape. In general, this development is located in the area commonly known as Namaqua District. From Eskom Gromis substation the line crossways on an area which is by the shoreline, and will slantways agricultural and deserted landscape until it reaches its destination at Eskom Juno substation. In short, this power line will traverses over an arid western side of the Republic of South Africa ranging from Namaqualand outcrops, coastal flatlands and mostly on sand dunes, as well as Namaqua National Park and area demarcated for mining purposes, some of these area are rehabilitated land. It also transverses over major river, wetland features as well as perennial water stream. From Juno, the power line extends parallel other existing power lines. However, it substantially diverts onto the new escarpment establishing a new corridor. Nonetheless, in order to assertion that the proposed development do not negatively impact on archaeological, graves and historical sites, the walk down of all the area proposed for pylon position and servitudes was conducted (see Table 2), with emphasis on potential area that can yield archaeological, historical and graves sites. Thus, the walk down constitutes walking the line corridor and tower position. The area on which attention was intended included rocky outcrops and mountainous areas, erosion dongas and unnatural clusters of vegetation. Although variety of sites have been noted in Namaqua, the prevailing heritage resources in this area relate to colonial settlers portrayed through built environment, as well as the history of the Nama speaking people.

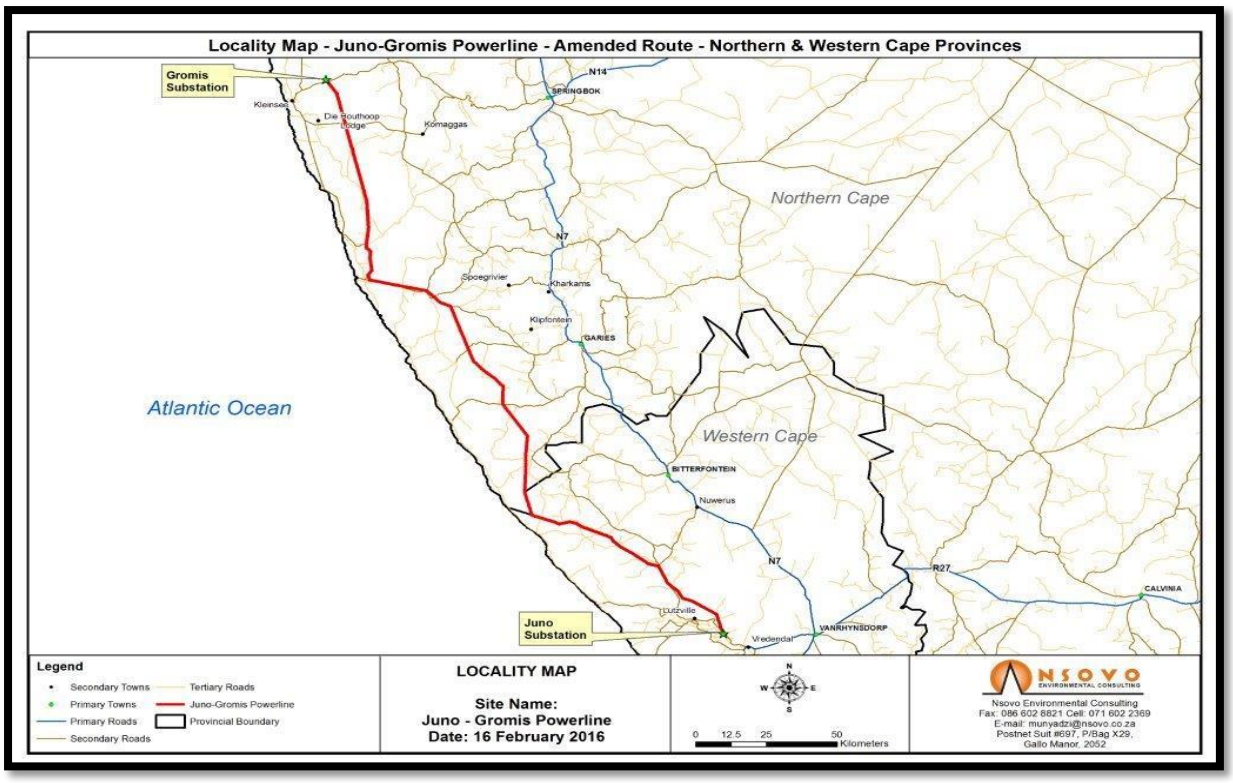


Figure 1: An overview of the area proposed for the 230km 400kv power line from Eskom Gromis substation to Eskom Juno substation as indicated by a red line.

Figure 2: An overview of some of some of the section that will be impacted by the proposed Pylon.

Figure 3: View of section of the mine rehabilitated land that will be impacted by the power line.

Figure 4: View of some of the area in the proposed site that were seriously inspected for any sign of archaeological resources.

Figure 5: View of some of the area that will be impacted, and were inspected.

Table 2: Brief description and depiction of the area proposed for development.

Tower	Description	Depiction
1 – 6	The area proposed for pylon position number 1 to 6 is fairly undulating. These areas are disturbed significantly as a results of agriculture amongst others.	

7 – 10A	The proposed area for these towers is reasonably steep and generally used for animal rearing.	
11-16	The proposed area for tower number 11 to 16 can be summed as substantially characterised by sand dunes.	
17 - 38	The area proposed for these towers is within De Beers Mine territory and was surveyed by a helicopter, with each tower position aerially screened. The area is generally flat and sandy throughout.	

39	The area proposed for this tower can be summed as a sand dune.	
40 - 42	The proposed area is flat and sand throughout.	
43 - 44	These proposed areas are similar in landscape and are on top of a mount of sand.	

45 - 46	These proposed areas are similar and comprise sections which are reasonably flat, though with minor undulation.	
47 - 48	The pylons (s) are proposed on an area which is creamy coloured as a result of concentration of calcrete substrate along the trail. The topography is plane.	
49 - 51	The proposed sites are fairly undulating.	

52 - 82	The areas proposed for these towers are fairly similar and concentrated of a flat section of land and is also sand all the way through.	
83-100	The proposed areas are concentrated of very fine sand and are fairly flat.	
100-110	The areas proposed for these tower positions are evenly flat.	

111-126	The proposed areas are very even and concentrated of sand.	
127-139	These towers are proposed on an area which is fairly steep and very undulating.	
139-143	The proposed area is surging throughout.	

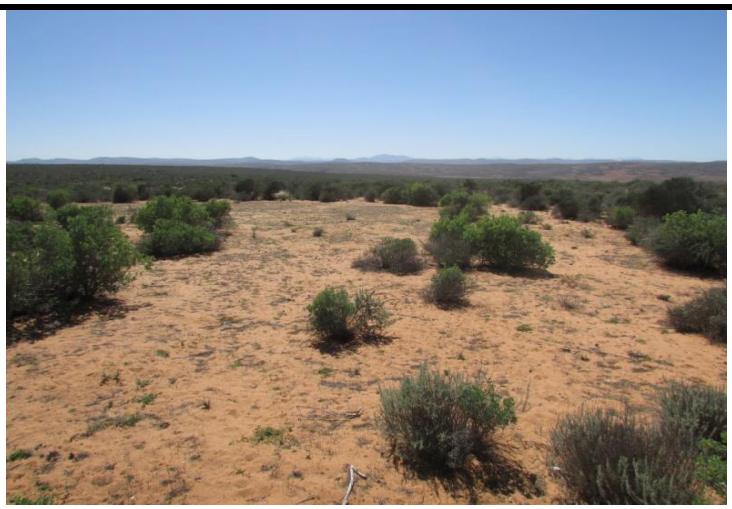
144-147	The proposed areas are varied and characterised by a jagged section of land with major undulation.	
148	The proposed area is a sand dune.	
149	The proposed area is undulating and vegetated.	

150-151	These two towers are proposed on an area which is similar in topography. Thus, both areas are sand dunes, and there are also some shrubs throughout.	
152	The proposed area is sharply steep.	
153	The topography of the proposed area for this tower is a sand dune.	

154-167	The area proposed for tower number 154 to 166 is mostly flat, sandy and vegetated throughout.	
168	The tower is proposed on an area which is disturbed indefinitely. As a consequence, the sand in the proposed area is a result of dumps. It would appear this were discarded there from somewhere else, and was for the purpose of rehabilitation.	

169	This tower is proposed on an area which has been rehabilitation upon and thus disturbed.	
170-171	As can be seen on the photo, towers 170 and 171 are proposed on sand which forms part of rehabilitation of the mine nearby.	
172-175	These towers, along with 170 and 171 are within a deserted mine and generally the area is disturbed as a result of rehabilitation activities.	

176-191	These towers are within Namaqua National Reserve. The area was observed by a helicopter and the topography was found to be intact and mostly flat, some sections are however rolling.	
192	The proposed area is fairly undulating and sand throughout.	
193-199	The area proposed for these towers is characterised by sand dunes throughout, few variations have been noted though, but whenever this happen, the terrain become undulating.	

200	The proposed area can be summed as one which is comparatively steep.	
201-203	The proposed areas for these towers are fairly undulating.	
204	The area proposed for this tower is a rocky outcrop located on a segment of a well pronounced hill.	

205-207	These tower positions are located on a base of the miniature hill.	
208	This tower is located on a hill made up of sand stones.	
208A-2012	These towers are located on an area which is fairly undulating and disturbed due to construction materials which have been dumped in the area throughout.	

213	The proposed area is fairly uneven.	
214	The proposed area is flat.	
215-217	These towers are proposed on an area which is located on the foot of a hill.	

218-220	These towers are proposed on a pinnacle of a hill.	
221-226	These towers are located on an area which is undulating.	
227-228	The area proposed for these towers are gently sloping.	

229	The proposed area is evenly steep.	
230	This proposed site is a sand dune.	
231	The proposed area is exceedingly steep.	

232	This tower is proposed on top of a hill characterised by boulders.	
233	The tower is proposed on a well pronounced sand dune.	
234-235	Both these towers are proposed on sand dunes.	

236	This tower is located on the foot of a hill nearby two sand dunes which are some metres away.	
237	This tower is proposed on a sand dune.	
238-239	These two towers are proposed on top of a hill.	

240	This tower is proposed on the bottom of hill.	
241-242	These two towers are proposed on a fairly steep section of land.	
243-244	Towers number 243 and 244 are proposed on an area which can be described as a mound of sand.	

245	This tower is proposed on a sand dune.	
246-249	These towers are proposed on a well pronounced mound of sand.	
250	This tower is proposed on a sand dune.	

251	This tower is proposed on a sand dune.	
252	This tower is proposed on a rolling sand dune.	
253	This tower is proposed on a lesser pronounced pile of sand.	

254-256	These towers are proposed on sections of land which is very uneven.	
257	This tower is proposed on a dune of sand.	
258-260	These towers are proposed on an undulating sections of land.	

261-266	These towers are proposed on a similar section of terrain which is rather precipitous.	
267-277	These towers are proposed on a topography which is undulating.	
278	This tower is proposed on a very steep area which is between two tiny hills.	

279	This tower is proposed on a small hill made up of sand.	
280-290	Towers numbers (s) 280 up to 289 are located on areas which are fairly steep.	
291	This tower is located on top of a hill.	

292	This tower is also located on a hill, there are residential structures nearby at approximately 100m away.	
293	This tower is proposed on a hill.	
294-298	These towers are proposed on an undulating area.	

299	This tower is proposed on a hill.	
300-303	These towers are proposed on a steep area of land.	
304-305	These towers are proposed on a flat section of land.	

306-307	These two towers are both proposed on a hill.	
308-309	These two towers are both proposed on a steep section of land.	
310-312	These towers are proposed on a fairly flat section land.	

313-315	These towers are proposed on a fairly undulating section of land.	
316	This tower is proposed on a prominence area overlooking the main access road.	
317	This tower is proposed on a very precipitous section of land nearby a river. The area was significantly searched for any archaeological sites.	
318	This tower is located on the foot of a hill.	

		
319-325	These towers are proposed on an undulating section of land.	
326	This tower is proposed on a sand dune.	

327-328	These towers are proposed on a fairly undulating section land.	
329	The topography on which this tower is proposed is fairly flat.	
330-331	These towers are proposed on an undulating section of land.	

332-333	These towers are proposed on a steep topography.	
334-335	These two towers are proposed on sand dunes.	
336	This tower is proposed on a mound of sand.	

337-343	These towers are proposed on a similar topography which can be described as sand dunes.	
344	This tower is proposed on a flat section of land which is close to an access road.	
345-348	These towers are proposed on a similar topography which can be described as sand dunes.	

349-350	These towers are proposed on a fairly steep section of land.	
351-356	The area which entails tower position number 351 to 356 is currently used for agriculture purposes.	
357	This proposed area is rather steep.	

358	This tower is proposed on a hill which is characterized of boulders.	
359	This tower is proposed on a sand dune.	
360	This tower is proposed on a steep section of land.	

361-363	These towers are proposed on similar topography which can be detailed as mounds of sand.	
364	This tower is proposed on a steep section of land.	
365	This tower is proposed at a prominence area.	

366-374	These towers are proposed on a similar topography which is prominence and characterised by stones and also sand.	
375	This tower is proposed on a steep area.	
376	This tower is proposed on a rather stony hill.	

377-379	These towers are located on a very steep section of land.	
380	This tower is proposed nearby a water course on a hilliest area.	
381-382	These towers are proposed on a steep area of land.	

383	The area on which this tower is proposed is a sand dune.	
384	The area on which this tower is proposed is a hill.	
385	This tower is proposed on an undulating area.	

386-387	These two towers are proposed on sand dunes.	
388	This tower is proposed on a fairly steep section of land.	
389-390	The area proposed for these towers are undulating.	

391	The landscape proposed for this tower is a sand dune.	
392-393	The scenery proposed for these towers is undulating.	
394	The proposed area is fairly steep.	

395-396	The scenery proposed for these towers is very undulating.	
397-401	These towers are proposed on an area which is hilliest.	
402-405	These towers are proposed on an area which is undulating.	

406-423	These towers are proposed on an area which is varied and consist of undulating section, fairly flat and is used for agriculture amongst others.	
424-429	These towers are proposed on an undulating section of land.	
430-437	These towers are proposed on similar topography which can be detailed as steep.	

438-440	These towers are proposed on similar topography which is undulating.	
441-445	These towers are proposed on similar topography which is very steep.	
446-450	These towers are proposed on a steep section of land which is under rehabilitation by the mine.	

451-458	The area proposed for these towers is undulating.	
459	The proposed area for this tower is undulating.	
460	The proposed area is very steep.	

461	The tower is proposed on an well pronounced outcrop.	
462-463	The towers are proposed on an outcrop section of terrain.	
464	The proposed area is steep.	

465-468	These towers are proposed on prominence areas.	
469-470	These pylons are proposed on an area which is a escalating.	
471-472	These towers are proposed parallel other Eskom towers on a steep section of land.	

473	This proposed site is steep.	
474-497	These towers are proposed on a fairly flat section of land which is currently utilized for agriculture purposes.	
498-499	The area proposed for these towers is steep.	

500	This tower is proposed on a mound section of land.	
501	This tower is proposed on a steep section of land.	
505-516	These towers are proposed on a fairly steep section of land which is currently utilized for agriculture purposes.	

517-520	These towers are proposed on an undulating section of land.	
521	This tower is proposed on a fairly steep section of land, some innate pebbles were noted in the area.	
522	This tower is proposed on a fairly steep section of land.	

523	This tower is proposed on a fairly steep section of land which is very rocky, the area was severely screened for any archaeological materials.	
524-526	These towers are proposed on a very undulating section of land.	
527-529	These towers are proposed on a hill section of terrain.	

530-533	These towers are proposed on a steep section of terrain.	
534	This tower is proposed on a base of hill.	
535-536	The proposed area is characterized by steep section of land.	

537	The proposed area is undulating throughout.	
538	The area proposed for a pylon is on a foot of a hill and there are some dongas, these were searched for any archaeological materials.	
539	This tower is located on a foot of a mining dump.	

540	This tower is proposed on a hill area.	
541-549	The area proposed for these pylon positions is fairly flat.	
550-560	These towers are proposed on a fairly flat section of land.	

561-566	The proposed area is fairly steep.	
567	The proposed area is flat.	
568	The proposed area is steep.	

569	The proposed area is flat.	
570	The proposed area is steep and overlooking a river.	
571-572	The area proposed for these towers is undulating.	

573	The proposed area is rather flat.	
574	The proposed area is undulating.	
575	The proposed area is undulating.	

576	The proposed area is somewhat shallow.	
577	The proposed area is very uneven.	
578-579	The area proposed for these towers is rather flat.	

580-582	The area proposed for these towers is relatively even.	
583	The area proposed for this tower is reasonably flat.	
584	The area proposed for this tower position appears to have been used as a borrow pit in the past.	

585	The area proposed for this tower is steep. 77	

3. Nature of the proposed project

Eskom is facing serious constrains to meet the needs of the nation due to growth rates of the economy. Like many other region in the country, the Cape District is faced by serious electricity problem. In the Western Cape Province for example, the local growth rates exceed the national average. In addition, Koeberg power station is also requiring downtime. Eskom is thus responding to this situation by expanding generation and distribution capacity of electricity. This will be done in many ways and will involve among others construction of two Open Cycle Gas Turbine power stations. These power stations would thus supply additional power during periods of peak electricity usage.

4. Purpose of the Cultural Heritage Study

The purpose of this Archaeological and Cultural Heritage Phase I EMP Walk down Cultural Heritage Impact Assessment study was to corroborate archaeological and heritage sites that were recorded during scoping heritage report conducted by Hall (2009), and also to identify and document other archaeological sites, cultural resources, sites associated with oral histories, graves, cultural landscapes, and any structure of historical significance that may be affected by the proposed construction. Impact assessments highlight many issues facing sites in terms of their management, conservation, monitoring and maintenance, and the environment in and around the site. Therefore, this study involves the following:

- Identification and recording of heritage resources that maybe affected by the proposed 400Kv pylon position of the power line,
- Providing recommendations on how best to appropriately safeguard identified heritage sites. Mitigation is an important aspect of any development on areas where heritage sites have been identified.

5. Methodological Approach

Background study introduction

The methodological approach is informed by the 2012 SAHRA Policy Guidelines for impact assessment. As part of this study, the following tasks were conducted: 1) literature review, 2), consultations with the developer and appointed consultants, 3), completion of a field survey and 5), analysis of the acquired data, leading to the production of this report.

Physical survey

The field survey lasted from the 1st to the 15th of March 2016, and it was adjourned due to issue related to access. Thus, most of the area is sand dunes which make it almost impossible to access, and henceforth a helicopter was suggested, and the survey was thus completed by a helicopter from the 12th of April to the 15th of April 2016. An archaeologist from Vhubvo, along with other specialists conducted the survey. The landscape of every pylon position was explained and recorded photographically (see Table 2). As above said, the aim of the survey was to express the significance of heritage resources that may be found in the proposed area, as well as to be able to determine whether the proposed project was feasible or not, from an archaeological point of view. As a supplement to the survey, oral interview was initiated with farm owners. The oral interviews aim to understand the cultural landscapes and/ or intangible heritage of the proposed area.

Documentation

The general project area was documented. This documentation included taking photographs using cameras a 10.1 mega-pixel Sony Cybershort Digital Camera. Plotting of finds was done by a Garmin etrex Venture HC.

Restrictions and Assumptions

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

should any archaeological/ or grave site be observed during construction, a heritage specialist must immediately be notified. In addition, activities related to the conduction of geo-technical service as noted on site have significantly disturbed the area, such that certain sites could have been disturbed.

6. Applicable heritage legislation

Several legislations provide the legal basis for the protection and preservation of both cultural and natural resources. These include the National Environment Management Act (No. 107 of 1998); Mineral Amendment Act (No 103 of 1993); Tourism Act (No. 72 of 1993); Cultural Institution Act (No. 119 of 1998), and the National Heritage Resources Act (Act 25 of 1999). Section 38 (1) of the National Heritage Resources Act requires that where relevant, an Impact Assessment is undertaken in case where a listed activity is triggered. Such activities include:

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50 m in length; and
(c) any development or other activity which will change the character of an area of land, or water -
- *(i) exceeding 5 000 m² in extent;*
- *(ii) involving three or more existing erven or subdivisions thereof; or*
- *(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
- *(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a Provincial Heritage Resources Authority;*

(d) the re-zoning of a site exceeding 10 000 m2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a Provincial Heritage Resources Authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Section 3 of the National Heritage Resources Act (25 of 1999) lists a wide range of national resources protected under the act as they are deemed to be national estate. When conducting a Heritage Impact Assessment (HIA) the following heritage resources have to be identified:

(a) Places, buildings structures and equipment of cultural significance
(b) Places to which oral traditions are attached or which are associated with living heritage
(c) Historical settlements and townscapes
(d) Landscapes and natural features of cultural significance
(e) Geological sites of scientific or cultural importance
(f) Archaeological and paleontological sites
(g) Graves and burial grounds including-
- *(i) ancestral graves*
- *(ii) royal graves and graves of traditional leaders*

(iii) graves of victims of conflict
(iv) graves of individuals designated by the Minister by notice in the Gazette
(v) historical graves and cemeteries; and
(vi) other human remains which are not covered by in terms of the Human Tissue Act,1983 (Act No. 65 of 1983)

(h) Sites of significance relating to the history of slavery in South Africa

(i) moveable objects, including -

(i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens
(ii) objects to which oral traditions are attached or which are associated with living heritage
(iii) ethnographic art and objects
(iv) military objects
(v) objects of decorative or fine art
(vi) objects of scientific or technological interest; and
(vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

Section 3 of the National Heritage Resources Act (No. 25 of 1999) also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value …' These criteria are the following:

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

Other sections of the Act with a direct relevance to the AIA are the following:
Section 34(1) *No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.*

Section 35(4) *No person may, without a permit issued by the responsible heritage resources authority:*

- *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite*

Section 36 (3) *No person may, without a permit issued by SAHRA or a provincial heritage resources authority:*

- *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside formal cemetery administered by a local authority; or*
- *bring onto or use at a burial ground or grave any excavation equipment, or any equipment which assists in detection or recovery of metals.*

7. Degree of significance

This category requires a broad, but detailed knowledge of the various disciplines that might be involved. Large sites, for example, may not be very important, but a small site, on the other hand, may have great significance as it is unique for the region.

Significance rating of sites

(i) High (ii) Medium (iii) Low

This category relates to the actual artefact or site in terms of its actual value as it is found today, and refers more specifically to the condition that the item is in. For example, an archaeological site may be the only one of its kind in the region, thus its regional significance is high, but there is heavy erosion of the greater part of the site, therefore its significance rating would be medium to low. Generally speaking, the following are guidelines for the nature of the mitigation that must take place as Phase 2 of the project.

High

- This is a 'do not touch' situation, alternative must be sought for the project, examples would be natural and cultural landscapes like the Mapungubwe Cultural Landscape World Heritage Site, or the house in which John Langalibalele resided.
- Certain sites, or features may be exceptionally important, but do not warrant leaving entirely alone. In such cases, detailed mapping of the site and all its features is imperative, as is the collection of diagnostic artefactual material on the surface of the site. Extensive excavations must be done to retrieve as much information as possible before destruction. Such excavations might cover more than half the site and would be

mandatory; it would also be advisable to negotiate with the client to see what mutual agreement in writing could be reached, whereby part of the site is left for future research.

Medium

- Sites of medium significance require detailed mapping of all the features and the collection of diagnostic artefactual material from the surface of the site. A series of test trenches and test pits should be excavated to retrieve basic information before destruction.

Low

- These sites require minimum or no mitigation. Minimum mitigation recommended could be a collection of all surface materials and/ or detailed site mapping and documentation. No excavations would be considered to be necessary.

In all the above scenarios, permits will be required from the South African Heritage Resources Agency (SAHRA) or the appropriate PHRA as per the legislation (the National Heritage Resources Act, no. 25 of 1999). Destruction of any heritage site may only take place when a permit has been issued by the appropriate heritage authority. The following table is used to grade heritage resources.

Table 3: Grading systems for identified heritage resources in terms of National Heritage Resources Act (Act 25 of 1999).

Level	Significance	Possible action
National (Grade I)	Site of National Value	Nominated to be declared by SAHRA
Provincial (Grade II)	Site of Provincial Value	Nominated to be declared by PHRA
Local Grade (IIIA)	Site of High Value Locally	Retained as heritage
Local Grade (IIIB)	Site of High Value Locally	Mitigated and part retained as heritage
General Protected Area A	Site of High to Medium	Mitigation necessary before destruction
General Protected Area B	Medium Value	Recording before destruction
General Protected Area C	Low Value	No action required before destruction

8. Discussion of (Pre-) History of the South Africa

South Africa has one of the longest sequences of human development in the world. The prehistory and history of South Africa span the entire known life span of human on earth. It is thus difficult to determine exactly where to begin, a possible choice could be the development of genus *Homo* millions of years ago. South African scientists have been actively involved in the study of human origins since 1925 when Raymond Dart identified the Taung child as an infant halfway between apes and humans. Dart called the remains *Australopithecus africanus*, southern ape-man, and his work ultimately changed the focus of human evolution from Europe and Asia to Africa, and it is now widely accepted that humankind originated in Africa (Robbins *et al.* 1998). In many ways this discovery marked the birth of palaeoanthropology as a discipline. Nonetheless, the earliest form of culture known in South Africa is the Stone Age. These prehistoric period during which humans widely used stone for tool-making, stone tools were made from a variety of different sorts of stone. For example, flint and chert were shaped for use as cutting tools and weapons, while basalt and sandstone were used for ground stone. Stone Age can be divided into Early, Middle and Late, it is argued that there are two transitional period. Noteworthy that the time frame used for Stone Age period is an approximate and differ from researcher to researcher (see Korsman & Meyer 1999, Mitchell 2002, Robbins *et al.* 1998).

Stone Age period

Although a long history of research on the Early Stone Age period of southern Africa has been conducted (Mason 1962, Sampson 1974, Klein 2000, Chazan 2003), it still remains a period were little is known about. These may be due to many factors which includes, though not limited to retrieval techniques used, reliance on secondary, at times unknown sources, and the fact that few fauna from this period has been analysed (Chazan 2003). According to Robbins *et al.* (1998) the Stone Age is the period in human history when stone was mainly used to produce tools. This period began approximately 2.5 million years ago and ended around 200 000 years ago. During this period human beings became the creators of culture and was basically hunters and gatherers, this era is identified by large stone artefacts.

The Middle Stone Age overlap with the EIA and possibly began around 100 000 to about 200 000 years ago and extends up to around 35 000 years ago. This period is marked by smaller tools than in ESA. MSA people made a wide range of stone tools from both coarse- and fine-grained rock types. Sometimes the rocks used for tools were transported considerable distances, presumably in bags or other containers; as such tool assemblages from some MSA sites tend to lack some of the preliminary cores and contain predominantly finished products like flakes and retouched pieces.

Microlithic Later Stone Age period began around 35 000 and extend to the later 1800 AD. According to Deacon (1984), LSA is a period when human being refined small blade tools, conversely abandoning the prepared-core technique. Thus, refined artefacts such as convex-edge scrapers, borers and segments are associated with this period. Moreover, large quantity of art and ornaments were made during this period. Prehistoric rock art in Northern Cape is found in the form of both paintings and engravings. Rock paintings and engravings are generally found on cave and shelter walls in the coastal regions and in mountain ranges along Postmansburg to Danielskuil (Boshier and Beaumont 1974).

Several sites dating to the Stone Age are known to exist around the larger geographical area of the proposed development. The most well-known of all is Wonderwerk Cave in the Kuruman Hills, this site which is about 150km north-east of the proposed area, and constitutes a very large cave, extends for almost 140m into the base of a low foothill on the eastern flank of the Kuruman Hills. Wonderwerk Cave has been the subject of a number of archaeological investigations since the first published description by Malan and Wells in 1943 (Thackeray *et al.* 1981). Another site Blinkklipkop (Tsantsabane), this site is about 100km north of the proposed area, and it appears that activities at the site began 1200 B.P. Lithic artefacts, including crudely worked scrapers and miscellaneous pieces were found in the site, this site was marred by debate in the 1970 and 1980, with faunal material analysed and reanalysed, with contradictory results. Not far away from Blinkklipkop, there is another site, Doornfontein, dates to the same time range as Blinkklipkop. Results of excavations at the Blinkklipkop speculate that mining began some time before A.D. 800. The mining was probably conducted by Khoi and San people before the seventeenth century. Also, the

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

Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce artefacts. Recently, they have been a debate about the use of the name. Other archaeologist have argued that the word "Iron Age" is problematic and does not precisely explain the event of what happen in southern Africa, as such, the word farming communities has been proposed (Segobye 1998). Nonetheless, in South Africa this period can be divided into two phases. Early (200 - 1000 A.D) and Late Iron Age (1000 - 1850 A.D). Huffman (2007) has indicated that a Middle Iron Age (900 - 1300 A.D) should be included. According to Huffman (2007:361), until the 1960s and 1970s most archaeologists had not yet recognised a Middle Iron age. Instead they began the Late Iron Age at AD 1000. The Middle Iron Age (AD 900 - 1300) is characterised by extensive trade between the Limpopo Confluence and the East Coast of Africa. This has been debated, with other researchers, arguing that the period should be restricted to Shashe-Limpopo Confluence.

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

The Rolong and Tlhaping group of the Tswana were the next to arrive, on arrival they absorbed the Kgalagadi and San people who were found in the area (Schapera 1652). The Tlhaping were referred to as Briqua (goat people) by the Khoi people, and they ate fish which is unusual among the Bantu-speaking people (Breutz 1989:11). Breutz (1989) and Levitas (1983) indicated that these groups arrived between 1200 and 1350. According to Maggs

(1972), the area around the proposed area is associated with the Tlhaping group. Dithakong which was an important Batlhaping capital during the time of Chief Molehebangwe, is about 60km of the proposed area. The early traveller accounts refer to an impressively large town consisting of mud houses, traces of which have yet to be located archaeologically. However, stone walls dating to the Late Iron Age period has been documented. According to Maggs (1972:57), Dithakong is unique in the quality of the historical and ethnological information of the Tswana. This site appears to be the only area in which there is direct archaeological evidence for settlement in the form of stone walling.

Historical period

Since the arrival of the white settlers - c. AD 1650s - in this part of the country, these settlers were largely self-sufficient, relying on cattle/sheep farming and also hunting. Few towns were established and farming remains the most dominant economy.

9. Survey Findings and Discussions

The Archaeological and Cultural Heritage Phase I walk-down of the construction and operational EMPR for the proposed 230km Juno-Gromis 400kv power line has identified isolated Stone tools, and historical objects on the proposed line servitudes. Except for tools which were noted on one tower position, none of these (isolated tools and historical objects) was documented on the exact site of the pylon. Although Stone tools are almost ubiquitous in the wider region of Namaqualand, their unavailability in the proposed area is unexpected, impacts to archaeological objects are unlikely next to the shoreline due to sparse nature of human settlement away from the coast. The Stone tools, chiefly associated with ancestors of the San and Khoekhoen were only noted in area where the Aeolian sands have eroded, exposing the underlying layers. Conversely, historical sites with mostly built environment were noted in the line servitudes. In addition, grave sites were also documented, however these were located away from the proposed line servitudes.

In consideration of their context, the noted stone tools and built environment have medium to low significance, irrespective of their significance, these resource are protected from any form of alteration or demolition without a permit by Sections of the National Heritage

Resources Act (No 25 of 1999). The recommendation mentioned below should be considered with responsiveness, since they are meant to protect and conserve archaeological and heritage materials.

Table 4: Attributes of noted materials and respective significance.

Tower (s)	Description and relation to line	Co-ordinates	Significance	Mitigation
51	An informal family grave site was noted south-west and 300m of Tower No. 51 (Fig. 10).	S29 48' 43.5" E17 14' 58.2"	High	An educational programme to construction workers is essential to avoid accidental damage. In addition, Eskom must take note of the grave and its position and ensure that no negative impact take place during construction. A danger tape around the grave is recommended during activities on Tower No. 51 and 52.
176-191	These towers are located within Namaqua reserves. The findings of these towers were exclusively extrapolated from aerial observations. Prior experience has taught us that archaeological sites tend to remain stable in reserves since there are few disturbances in these areas.	--	Medium	Archaeological monitoring must be undertaken by an archaeologist during construction of these towers. Especially on precipitous areas.
203	An informal family	S30 21' 51.8" E17 29' 30.4"	High	Eskom must take note of the grave site and its position and

	graveyard was noted 300m of Tower No. 203. This graveyard is next to the access road (Fig 11).			ensure that no negative impact take place during construction. A danger tape around the site is recommended during activities on Tower No. 203. In addition, if Eskom is to utilise the existing access road, it is recommended that a Heritage Specialist be appointed to compile a Heritage Management Plan (HMP) with recommendations that shall be observed at all times.
204	Several oval stone assemblages which might possibly be an indication of a grave site were documented 80m south east of Tower No 204 (Fig 12).	S30 21' 45.4" E17 29' 39.2"	High if a grave	The farm owner must be consulted with regarding the possibility of this being a grave. If indeed it's a grave, a danger tape around the site is recommended during activities at Tower No. 204.
251	A historical structure was noted 100m south west of Tower No. 251(Fig 14).	S30°31'32.06" E17°36'45.92"	Medium to Low	Eskom must take note of the structure and its position and ensure that no negative impact take place during construction.
279	A historical structure was noted 110m of Tower No. 279.		Medium to Low	Eskom must take note of the structure and its position and ensure that no negative impact take place during construction.
292	A house which might be over 60 years of age was noted about 100m of Tower No. 292.		Medium to Low	Eskom must take note of the house and its position and ensure that no negative impact take place during construction.
400	A wind mill was noted 50m of Tower No. 400 (Fig 13).		Medium to Low	Eskom must take note of the site and its position and ensure that no negative impact take place during construction.
464	Historical farm	S30°31'32.06"	Medium to	Eskom must take note of the

	dwellings were noted approximately 150m from Tower No. 464.	E17°36'45.92"	Low	site and its position and ensure that no negative impact take place during construction.
540-541	Isolated tools found in low density (0 – 1) were documented between Tower No. 540 to 541, mostly on the line corridor. These tools were found in secondary positions (Fig 8).		Medium to Low	Surface collection of these tools is recommended. In addition, monitoring is required during construction to assess the level of density of these tools.
573	An isolated Late Stone tool was noted 30m of the area proposed for Tower No. 573 (Fig 7).	S31°34'04.06" E18°25'51.06"	Low	Monitoring during construction of Tower No. 573 is recommended to determine if whether the density of this tool is consistently low, or not.

Portrait of Documented Stone Implements and other Heritage Resource

Figure 6: An overview of some of the area where the Aeolian sands have eroded. Note some of the archaeological tools. This area was about 200m away from tower number 25.

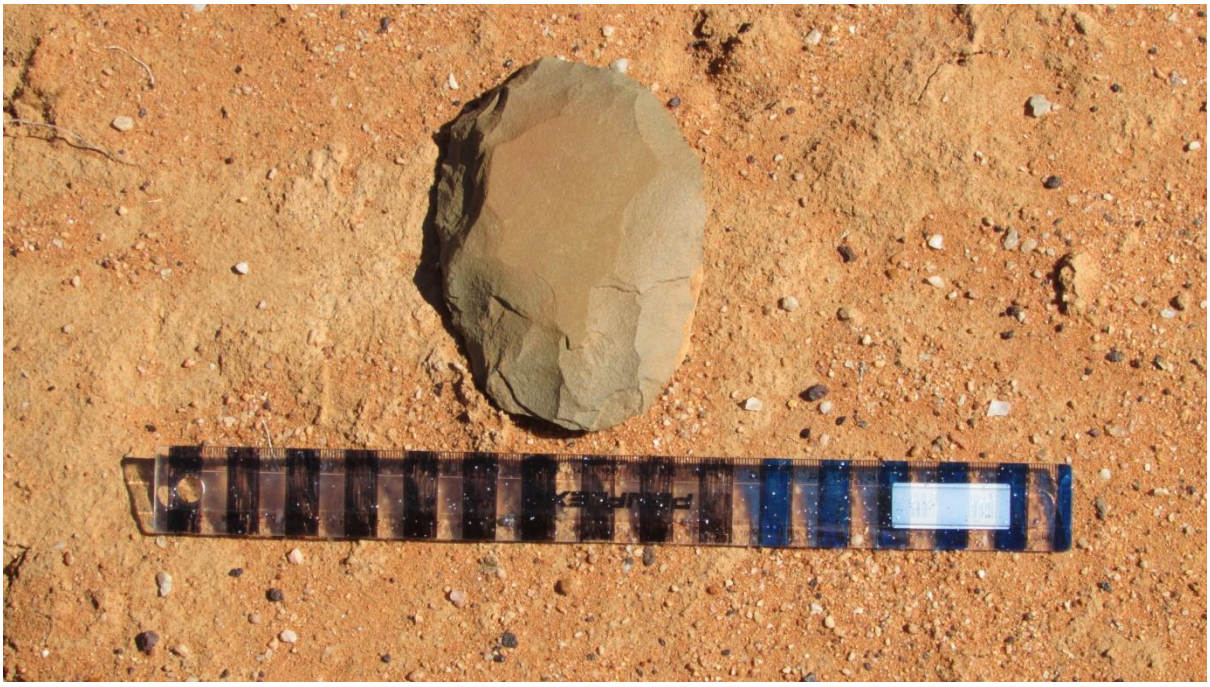


Figure 7: View of stone structure noted in the area proposed for development.

Figure 8: An overview of other isolated stone tools noted in the area.

Figure 9: View of stone implements noted in the line servitudes.

Figure 10: View of a grave site.

Figure 11: An overview of the informal grave site noted in the area.

Figure 12: An overview of assembled cairns of stones.

Figure 13: An overview of a wind mill noted in the area.

Figure 14: View of an abandoned structure.

10. Recommendations

In compliance with the National Heritage Legislature, there was no observable development activities associated with the proposed project.

It is recommended that an archaeological monitoring be undertaken by an archaeologist during construction of pylon No. 176-191, 540-541 and 573. This will ensure that no materials are destroyed or damaged.

The developer is reminded that unavailability of archaeological materials (e.g., pottery, stone tools, remnants of stone-walling, graves, etc) and fossils does not mean absentee, archaeological material might be hidden underground, and as such the client is reminded to take precautions during construction.

Pre-construction education and awareness training

Prior to construction, contractors should be given training on how to identify and protect archaeological remains that may be discovered during the project. The pre-construction training should include some limited site recognition training for the types of archaeological sites that may occur in the construction areas. Below are some of the indicators of archaeological site that may be found during construction:

- Flaked stone tools, bone tools and loose pieces of flaked stone;
- Ash and charcoal;
- Bones and shell fragments;
- Artefacts (e.g., beads or hearths);
- Packed stones which might be uncounted underground, and might indicate a grave or collapse stone walling.

In the event that any of the above are unearthed, construction on the affected pylon site should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist or SAHRA officer should be contacted immediately. In the meantime, it is the responsibility of the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached. Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the endorsement of SAHRA.

11. Conclusions

Although there was no archaeological site documented in the area proposed for pylon position, isolated tools were noted, as well as historical structures. These are of medium significant and monitoring should be partitioned whenever construction is happening around them. If such measures are implemented successfully, there would be no objection to the proposed operation and construction of approximately 230km 400Kv power line from Eskom Juno Substation to Eskom Gromis Substation.

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APPENDIX 1: SITE SIGNIFICANCE

The following guidelines for determining site *significance* were developed by SAHRA in 2003. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

(a) Historic value

- Is it important in the community, or pattern of history?
- Does it have strong or special association with the life or work of a person, group or organization of importance in history?
- Does it have significance relating to the history of slavery?

(b) Aesthetic value

- Is it important in exhibiting particular aesthetic characteristics valued by a community or cultural group?

(c) Scientific value

- Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage?
- Is it important in demonstrating a high degree of creative or technical achievement at a particular period?

(d) Social value

- Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons?

(e) Rarity

- Does it possess uncommon, rare or endangered aspects of natural or cultural heritage?

(f) Representivity

- Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects?
- What is the importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as

being characteristic of its class?

- Is it important in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality?