

**ARCHAEOLOGICAL IMPACT ASSESSMENT
THE PROPOSED ESKOM POFADDER-
LUIPERSHOEK 11 Kv POWERLINE PROJECT
NORTHERN CAPE PROVINCE**

Prepared for:

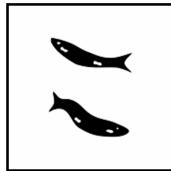
ROYAL HASKONING DHV

Att: Ms Ntseketsi Lerotholi
PO Box 867
Gallo Manor
2052
E-mail: Ntseketsi.Lerotholi@rhdhv.com

On behalf of:

ESKOM DISTRIBUTION WESTERN REGION

By



Jonathan Kaplan
Agency for Cultural Resource Management

5 Stuart Road
Rondebosch
7700

Ph/Fax: 021 685 7589
Mobile: 082 321 0172
E-mail: acrm@waccess.co.za

**FEBRUARY
2013**

Executive summary

Introduction

ACRM was appointed to conduct an Archaeological Impact Assessment (AIA) for the proposed construction of the Eskom Pofadder-Luiperdshoek 11 kV powerline near Pofadder in the Northern Cape Province.

Eskom is proposing to construct a new 13.7 km long overhead powerline, to supply electricity to previously disadvantaged farmers living in the Luiperdshoek area.

The proposed powerline follows the alignment of an existing gravel road, from a point alongside the R358/Onseepkans road, till the farm Luiperdshoek on the Orange River.

No alternative routes are proposed.

The aim of the study is to locate and map archaeological sites/remains that may be impacted by the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate the impacts.

The AIA forms part of the Basic Assessment process that is being conducted by Royal HaskoningDHV.

The study entailed the following:

1. A walk through survey of the proposed 13.7 km long route.
2. A desk top study was also done.

Findings

Very sparse heritage traces were documented during the study. Only three isolated stone artefacts were identified along the route, including two Later Stone Age flakes, and one Middle Stone Age flake.

The findings mirror the results of studies done by archaeologists working elsewhere in the region.

The very small numbers means that the archaeological remains have been rated as having low (Grade 3C) significance.

No graves or stone cairns were identified along the route.

Predicted impacts

The study has identified no significant impacts to pre-colonial archaeological material.

Conclusion

In terms of the archaeological heritage, the proposed activity is deemed to be viable.

Recommendations

With regard to the proposed construction of the Eskom Pofadder-Luiperdshoek 11 kV powerline, the following recommendations are made:

1. No mitigation is required.
2. Should any unmarked human burials/remains or ostrich eggshell water flask caches for example, be uncovered, or exposed during excavation of the powerline poles, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (SAHRA) - Att Ms Katie Smuts 021 462 4502.

Table of Contents

	Page
Executive summary	1
1. INTRODUCTION	4
2. HERITAGE LEGISLATION	6
3. TERMS OF REFERENCE	6
4. DESCRIPTION OF THE RECEIVING ENVIRONMENT	6
5. STUDY APPROACH	10
5.1 Method of survey	10
5.2 Constraints and limitations	10
5.3 Identification of potential risks	10
5.4 Results of the desk top study	10
6. FINDINGS	11
6.1 Significance of the archaeological remains	11
6.2 Graves	11
7. PREDICTED IMPACTS	11
8. CONCLUSIONS	12
9. RECOMMENDATIONS	12
10. REFERENCES	13

1. INTRODUCTION

Royal HaskoningDHV, on behalf of Eskom Distribution Western Region appointed the Agency for Cultural Resource Management to conduct an Archaeological Impact Assessment (AIA) for the proposed construction of the Pofadder-Luiperdshoek 11 kV powerline, near Pofadder (Khâi Ma Municipality) in the Northern Cape Province (Figure 1).

Eskom is proposing to construct a new 13.7 km long overhead powerline, to supply previously disadvantaged farmers in the Luiperdshoek area with electricity to their pumps for irrigation. A pole mounted transformer with a metering kiosk will be also installed.

The proposed powerline follows the alignment of an existing gravel road, from a point alongside the R358/Onseepkans road, till the farm Luiperdshoek on the Orange River (Figures 2 & 3).

No alternative routes are proposed as the surrounding terrain is fairly inhospitable.

The AIA forms part of the Basic Assessment process that is being conducted by Royal HaskoningDHV.



Figure 1. Locality map



Figure 2. Google Earth aerial photograph of the region. The area inside the red block indicates the study area.



Figure 3. Close up of the proposed route (in purple) as illustrated in Google Earth.

2. HERITAGE LEGISLATION

Section 38 (1) (a) of the National Heritage Resources Act (No 25 of 1999) indicates that any person constructing a powerline, pipeline or road, or similar linear development or barrier exceeding 300m in length is required to notify the responsible heritage resources authority, who will in turn advise whether an impact assessment report is needed

3. TERMS OF REFERENCE

The terms of reference for the study were to:

- Determine whether there are likely to be any important archaeological resources that may potentially be impacted by the proposed project;
- Indicate any constraints that would need to be taken into account in considering the development proposal;
- Identify potentially sensitive archaeological areas, and
- Recommend any further mitigation action.

4. DESCRIPTION OF THE RECEIVING ENVIRONMENT

The proposed 13.7 km long powerline will tee off from the existing Eskom powerline line at the R358 Onseepkans/Luiperdshoek road, which is about 30 kms north east of Pofadder.

The proposed route follows the alignment of the existing gravel road (Figures 4-21).

The receiving environment for the first 6.5 kms of the route is dominated by soft red sands with very little surface stone occurring, and sparse vegetation cover such as grass tufts and small bushes. The route crosses several small drainage channels that drain into an unnamed (dry) river about a kilometre north of the road. Where the gravel road starts to enter a steep rocky gorge, it becomes stonier with some outcroppings of granite occurring in places. There is fairly extensive sheet wash alongside the road between kms 5 and 6 (refer to Figures 9 & 10).

Between kms 6.5 and 8.8, the route cuts through a steep rocky gorge, crossing several non-perennial streams, until it reaches the floodplain and irrigated farmlands alongside the Orange River.

Thereafter (between kms 8.8 and 13.7), the receiving environment is characterised by irrigated farmland (mangoes, pumpkin and watermelon), and fallow fields covered in thick dry grass.

Surrounding land use is Wilderness and some marginal grazing.



Figure 4. R358/Luiperdshoek intersection. View north west



Figure 7. View facing north west

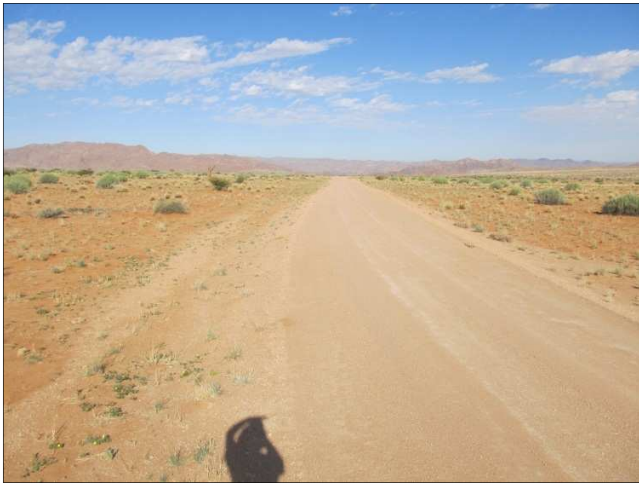


Figure 5. View facing north west

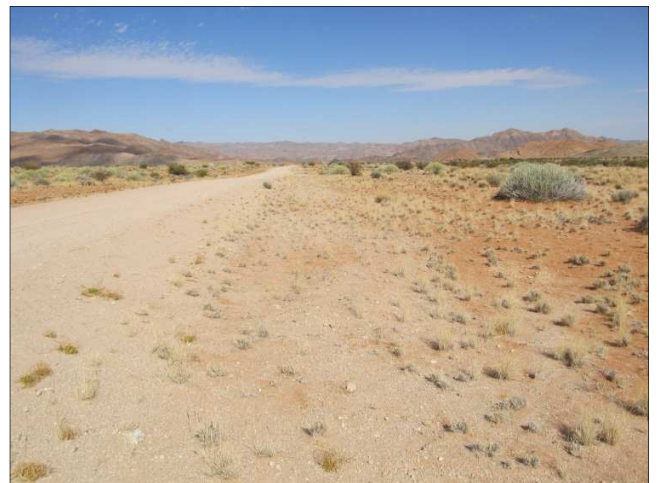


Figure 8. View facing north west



Figure 6. View facing north west



Figure 9. View facing north west. Not the extensive sheet washes alongside the gravel road



Figure 10. View facing north west. Note the extensive sheet wash alongside the road



Figure 13. View facing north west



Figure 11. View facing north west



Figure 14. View facing north. River is in the foreground



Figure 12. View facing north west



Figure 15. View facing north west. The Orange River is to the right of the plate



Figure 16. View facing north west



Figure 19. view facing north west



Figure 17. View facing north west



Figure 20. View facing north west



Figure 18. View facing north west



Figure 21. View facing north. A new pump station will be built alongside the river

5. STUDY APPROACH

5.1 Method of survey

The archaeological study entailed the following:

1. The entire length of the 13.7 km long route was surveyed on foot.
2. A desk top study was done.

The site visit and assessment took place on the 29 January, 2013.

5.2 Constraints and limitations

There were no constraints experienced during the study. The arid and sparsely vegetated desert environment provided excellent archaeological visibility.

5.3 Identification of potential risks

Based on the results of the study, there are no archaeological risks associated with the proposed development.

5.4 Results of the desk top study

While little systematic archaeological research has been done in the region, surprisingly, a relatively large number of commercial archaeological surveys have been done in the area surrounding Pofadder, where several public infrastructure projects (such as housing, road upgrades, and bulk water supply) and commercial developments including wind and solar energy farms, a shopping mall, agricultural and salt mining, have been proposed.

Most of the studies that have been done indicate that overall, archaeological remains are quite thin on the ground, limited to sparse heritage traces and occasional isolated stone artefacts of Later and Middle Stone Age origin (Beaumont 2008; Halkett 2010a, b; Morris 2010, 2005a, b; Morris & Seliane 2006; Orton & Webley 2012a, b; Pelsner 2012, 2011). Orton (pers. comm.) also encountered very sparse scatters of Later Stone Age material at a site east of Onseepkans, while Dreyer (2008) found no archaeological remains during an assessment of 14 existing borrow pits intended for the upgrading of the R358/Onseepkans road. Most of these traces probably represent the transient movement by hunter-gatherers and possibly herders crossing this seemingly arid and inhospitable landscape. This is in stark contrast to the floodplains of the Orange River where pre-colonial settlement was visibly more focussed and 'permanent' (Morris 2010).

Larger scatters of Later Stone Age remains, including tools, pottery and ostrich eggshell, tend to cluster around seasonal pans and springs, alongside streams/drainage channels, in overhangs and caves among granite inselbergs, and among sheltered dunes (Morris 2010; Orton and Webley 2012a, b). Rock art is scarce in the region but does occur, including rare cupule sites (Orton & Webley 2012a, b), while Morris (1998 & personnel observation) reports that rock engravings occur along the Orange River.

6. FINDINGS

Two isolated Later Stone Age flakes, one in quartz and one in banded iron stone, and one larger quartz Middle Stone Age flake, were located during the survey of the proposed powerline route (Figure 22).

The small numbers mean that the archaeological remains have been rated as having low (Grade 3C) significance.

6.1 Graves

No graves or stone cairns were found during the walk through survey of the proposed route.



Figure 22. Stone artefacts encountered alongside the proposed route. Scale is in cm

7. PREDICTED IMPACTS

The study has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to proposed development activities.

Potential Impact:	Significance rating of impact	Proposed mitigation	Significance rating of impacts after mitigation
Direct Impact			
Archaeological heritage	Temporal: Short term (1) Spatial: Localised (2) Significance: Low (1) Risk/Likelihood: Unlikely (2) Degree of Confidence/ Certainty: Definite Rating	None	Temporal: Short term (1) Spatial: Localised (2) Significance: Low (1) Risk/likelihood: Very Unlikely (1) Degree of Confidence/ Certainty: Definite Rating
Indirect Impacts			
None			
Cumulative impacts			
None			

Table 1: Assessment of archaeological impacts: The proposed Eskom Pofadder-Luiperdshoek 11 kV powerline.

8. CONCLUSION

The results of the AIA indicate that the proposed construction of the Eskom Pofadder-Luiperdshoek 11 kV powerline will not have an impact on the archaeological landscape.

Very sparse heritage traces were encountered during the survey which has been rated as having low archaeological significance.

The findings mirror the results of other studies done by archaeologists working elsewhere in the surrounding region.

Indications are that in terms of archaeological heritage, the proposed activity is viable.

9. RECOMMENDATIONS

With regard to the proposed construction of the Eskom Pofadder-Luiperdshoek 11 kV powerline near Pofadder in the Northern Cape, the following recommendations are made:

1. No archaeological mitigation is required.
2. Should any unmarked human burials/remains or ostrich eggshell water flask caches for example, be uncovered, or exposed during construction activities, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (SAHRA) - Att Ms Katie Smuts 021 462 4502.

10. REFERENCES

- Beaumont, P. 2008. Phase 1 Heritage Impact Assessment Report on a portion of the farm Kambreek 38, NNM of Pofadder, Siyanda District Municipality, Northern Cape. Report prepared for MEG Environmental Impact Studies, Upington.
- Dreyer, C. 2008. First Phase archaeological and cultural heritage assessment of the proposed upgrading of the R358 road and borrow pit sites between Pofadder and Onseepkans, Northern Cape. Report prepared for Spatial Solutions Incorporated Environmental Consultants. Cobus Dreyer Pr. Archaeologist/Heritage Specialist. Bloemfontein.
- Halkett, D. 2010a. An assessment of impacts on archaeological heritage resulting from replacement of sections of a section of existing bulk water pipeline from Pella to Pofadder, Northern Cape Province. Report prepared for Van Zyl Environmental Consultants. Archaeology Contracts Office.
- Halkett, D. 2010b. An assessment of impacts on archaeological heritage resulting from proposed housing development (low cost housing) at Pofadder, Northern Cape. Report prepared for Van Zyl Environmental Consultants. Archaeology Contracts Office.
- Morris, D. 2010. Pofadder Solar Thermal Plant. Specialist input for the Environmental Impact Assessment Phase and Environmental Management Plan for the proposed Pofadder Solar Thermal Plant, Northern Cape. Report prepared for Savannah Environmental. McGregor Museum, Kimberley.
- Morris, D. 2005a. Reports on a Phase 1 Archaeological Assessment of proposed salt mining areas on Eenbeker Pan, Opstaan Pan and Goebeoe Goebeoe Pan north of Pofadder, Northern Cape. McGregor Museum, Kimberley.
- Morris, D. 2005b. Report on a Phase 1 Archaeological Assessment of proposed salt works areas on the Eenzamheid Pan north of Pofadder, Northern Cape. McGregor Museum, Kimberley.
- Morris, D. 1998. 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. & Seliane, M, 2006. Report on a Phase 1 Archaeological Assessment of the site of a proposed Shopping Mall, Erf 19981, Van Riebeek Street, Pofadder, Northern Cape. McGregor Museum, Kimberley.
- Orton, J. & Webley, L. 2012a. Scoping Heritage Impact Assessment for the Pofadder Wind and Solar Energy Facility, Kenhardt Magisterial District. Northern Cape. Report prepared for Savannah Environmental. Archaeology Contracts Office, St James, Cape Town.
- Orton, J. & Webley, L. 2012b. Heritage Impact Assessment for the proposed Kangnas Wind and Solar Energy Facilities, Namakwa Magisterial District, Northern Cape. Report prepared for Aurecon South Africa (Pty) Ltd. ACO Jacobs Ladder, St. James.

Pelser, A.J. 2012. A report on a Heritage Impact Assessment (HIA) for the proposed photo-voltaic solar energy generation plant on Konkoonsies 91, Pofadder District, Northern Cape. Report prepared for Escience Associates (Pty) Ltd. Archaetnos, Groenkloof.

Pelser, A.J. 2011. A report on an Archaeological Impact Assessment (AIA) for the proposed solar energy plant on Konkoonsies 91, Pofadder District, Northern Cape. Report prepared for Robert de Jong and Associates. Archaetnos, Groenkloof.