

**ARCHAEOLOGICAL IMPACT ASSESSMENT  
THE PROPOSED CONSTRUCTION OF THE  
ESKOM MOOIDRAAI-SMITSKLOOF 132/22 KV  
POWERLINE AND SUBSTATION NEAR PRIESKA  
NORTHERN CAPE PROVINCE**

Prepared for:

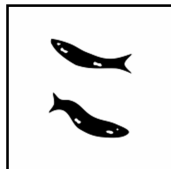
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## **Executive summary**

### **Introduction**

SSI Engineers and Environmental Consultants appointed the Agency for Cultural Resource Management to conduct an Archaeological Impact Assessment (AIA) for the proposed construction of the Moidraai-Smitskloof 132/22 Kv overhead powerline and substation near Prieska in the Northern Cape Province.

The activity entails the construction of a ± 23.5 km long overhead powerline, from the proposed new Smitskloof substation near the Orange River, to the existing Moidraai substation north of the R357 Prieska-Douglas Road. About 11 kms of the proposed route follows the existing, powerline servitude.

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 SSI.

The study entailed the following:

1. Apart from a relatively short (± 4.5 km long) section alongside the Moidraai servitude, almost the entire length of the proposed route (Alternative 1) was surveyed on foot.
2. The footprint area for both the proposed and proposed alternative, new substations was searched for archaeological remains.
3. Two short sections (about 4.5 kms in total) of the proposed (± 19 km long) alternative powerline route (Alternative 2) were searched on foot.
4. A desk top study was done.

### **Findings**

#### Alternative 1

More than 300 stone tools were encountered in Alternative 1. The majority of the implements were found alongside the existing Moidraai servitude, where large sections of the route are covered in thorny Swarthok vegetation. Most of the finds comprise single, isolated occurrences, but a dispersed (low density) scatter of tools was encountered near a degraded drainage channel/boundary fence about 2 kms from the Moidraai Substation.

Small numbers of tools were also encountered alongside the Smitskloof gravel road that leads to the Orange River, where long sections of the proposed route have already been degraded by diamond prospecting activities. Long sections of this route are covered in dense Swarthok and grasses, underlain by soft, loose red sands.

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The majority of the archaeological remains documented in Alternative 1 are assigned to the Middle Stone Age (MSA) and include mostly retouched and utilized, triangular shaped, and pointed flakes, flaked chunks, and cores. Several chunky retouched and utilized blade tools were also noted. A few formal tools including convex and side scrapers were found.

Early Stone Age (ESA) tools were also encountered along the proposed route, including several large flakes and angular chunks, and four Acheleun hand axes.

Some Later Stone Age (LSA) elements were also recorded, but no organic remains such as pottery, bone, beads or ostrich eggshell was found.

98% of the tools found are in banded ironstone which occurs widely in the region. Banded iron stone was favoured by Stone Age people in the Northern Cape because of its superior flaking qualities and sharp cutting edges and almost every piece encountered during the survey has been modified. Small numbers of tools in hornfels/indurated shale, and quartzite were also found, including several large, heavily weathered hornfels flakes.

No graves/stone cairns were found during the assessment of Alternative 1.

### Alternative 2

More than 35 stone implements were encountered in Alternative 2. A handful of MSA flakes, including a partially retouched bifacial point and blade, and several flaked chunks, and a core, (all in banded iron stone) were found on heavily vegetated, stony slopes about 2 kms south of the Smitskloof road/Orange River.

MSA flakes, chunks, and two cores (in banded iron stone, and quartzite), including a large weathered indurated shale flake and core were found along a short section of Alternative 2 that tees off from the Moodraai servitude.

A large section of Alternative 2 (in the south) is infested with thorny Swarthok vegetation, and the proposed route also crosses several wide, dry river beds and valleys.

No graves or stone cairns were located during the assessment of Alternative 2.

### Substation A

About 40 tools were counted in the footprint area of Substation A. Most of the tools are assigned to the MSA and include several retouched pointed flakes, modified and utilised flakes, chunks and cores. One beautifully crafted (ESA) Acheleun hand axe was also encountered on the soft red sands and stony, vegetated ground. Several LSA flakes were also found.

It is important to note that since the AIA was undertaken, a new location site for Substation A has been identified, as the original site has been screened out. The proposed new site is situated closer to Substation B where only a few tools were encountered.

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### Substation B

A broken quartzite flake and banded iron stone chunk were found in the footprint area of Substation B. The area has been cleared for centre pivot irrigation and comprises mainly loose red sands.

### **Significance of the archaeological remains**

As archaeological sites are concerned, the occurrences are all lacking in context. Most of the tools are of mixed age on eroded surfaces. No evidence of any factory or workshop site, or the result of any human settlement was identified. No organic remains such as bone, pottery or ostrich eggshell was found.

Overall, the fairly small numbers, isolated and disturbed context in which they were found, means that the archaeological remains have been rated as having low (Grade 3C) significance.

### **Predicted impacts**

It is maintained that the specialist study has captured good information on the archaeological heritage present, and that the study has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to proposed development activities.

### **Conclusion**

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

### **Recommendations**

With regard to the proposed construction of the Moodraai-Smitskloof 132/22 Kv powerline and substation near Prieska, the following recommendations are made:

1. No further archaeological mitigation is required.
2. Alternative 1 is the archaeologists preferred choice as a large portion of the proposed route is already disturbed and degraded. No additional infrastructure (e.g. new access roads) will be required and as a result, the overall impact to the archaeological landscape will be low.
3. 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.

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## 1. INTRODUCTION

SSI Engineers and Environmental Consultants on behalf of Eskom Distribution Western Region requested that the Agency for Cultural Resource Management conduct an Archaeological Impact Assessment (AIA) for the proposed construction of the Moodraai-Smitskloof 132/22 Kv overhead powerline and substation near Prieska (Siyathemba Municipality) in the Northern Cape (Figure 1).

The activity entails the construction of a  $\pm 23.5$  km long overhead powerline, from the proposed new Smitskloof substation near the Orange River, to the existing Moodraai substation north of the R357 Prieska-Douglas Road (Figure 2). About 11 kms of the proposed route follows the existing, Moodraai servitude.

The proposed new powerline and substation is needed in order to alleviate demand on the existing network and to sustain load growth in the area which is mostly consumed by agriculture, including large centre pivot irrigation, and some mining activities along the Orange River.

Two powerline routes - Alternative 1 and Alternative 2, and two substations (A & B) have been identified<sup>1</sup>. Alternative 1 is the preferred route (refer to Figure 2).

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

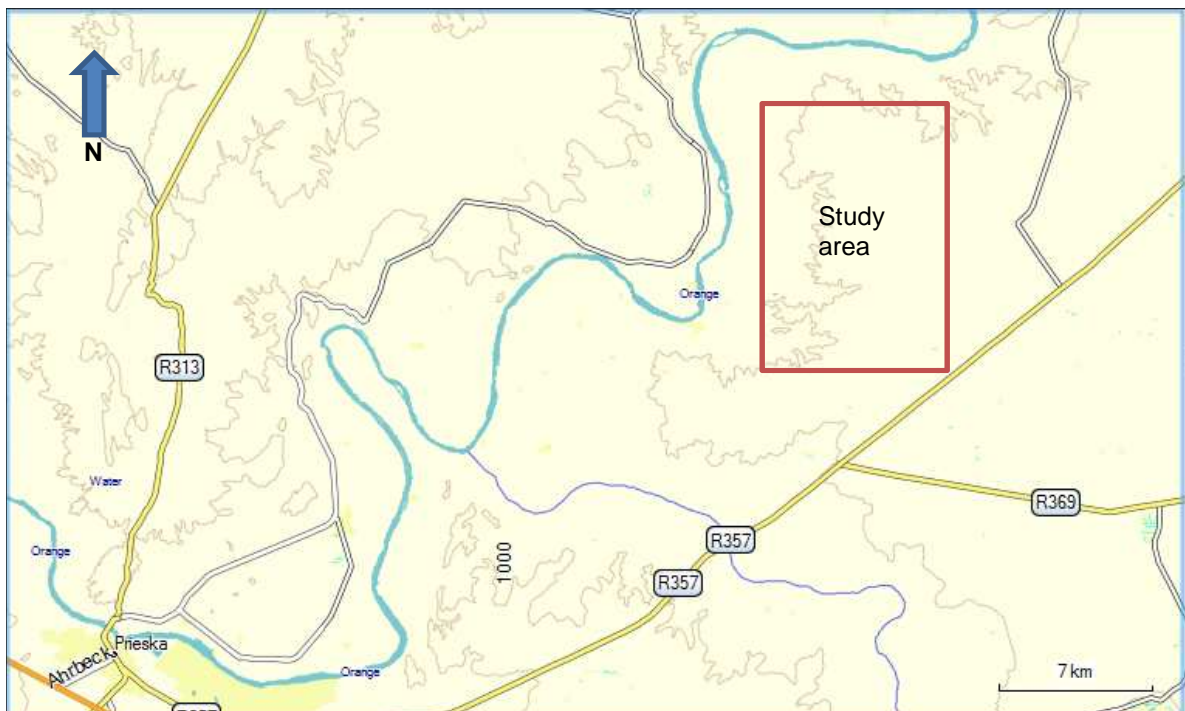


Figure 1. Locality map

<sup>1</sup> It should be noted that since the AIA was undertaken, a new location site for Substation A has been identified (refer to Appendix II).

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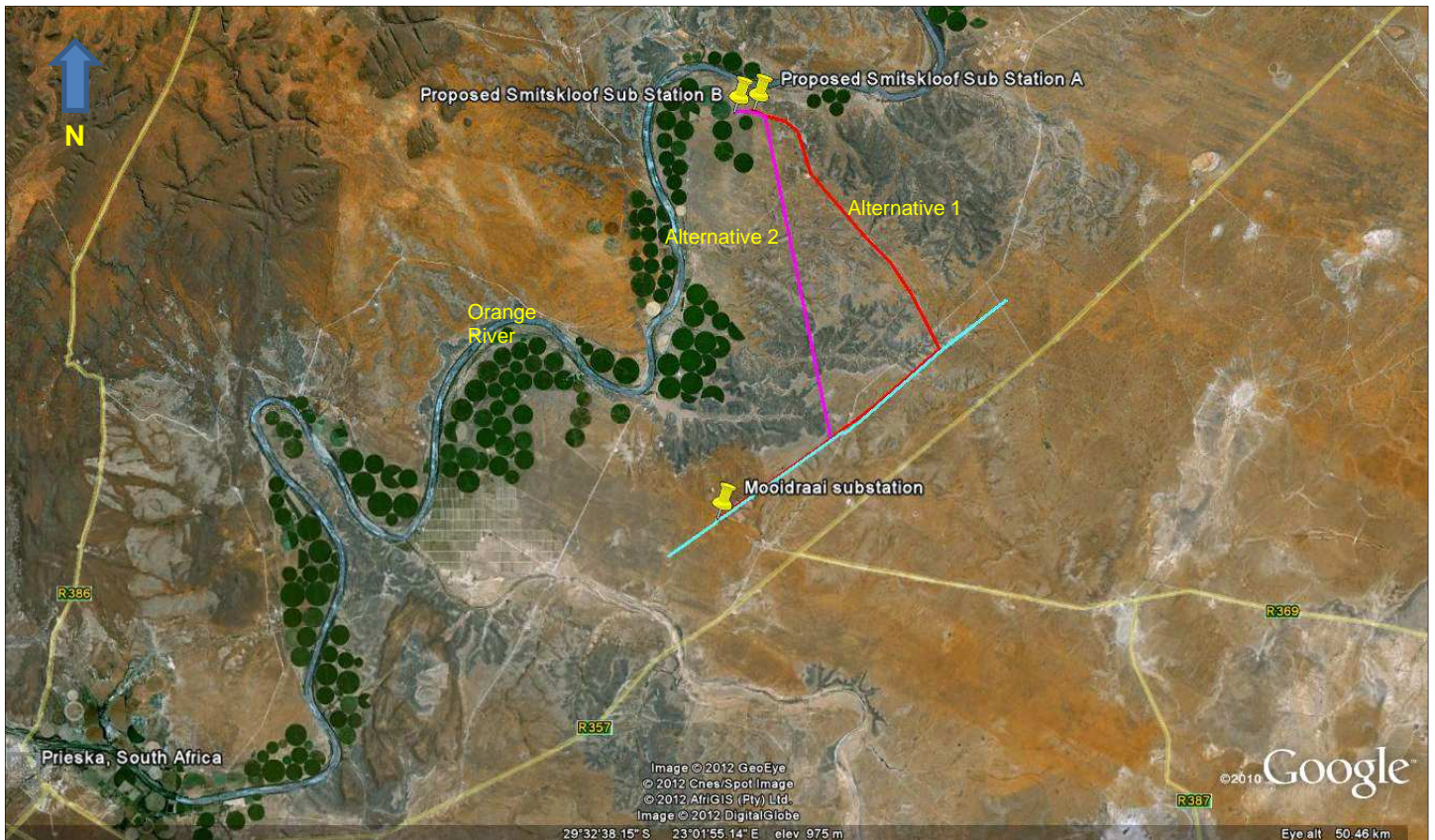


Figure 2. The proposed Smitskloof-Moodraai powerline and substation: preferred (red) and alternative (purple) route. The blue line is the existing Moodraai servitude

## 2. HERITAGE LEGISLATION

The National Heritage Resources Act (No 25 of 1999) makes provision for a compulsory Heritage Impact Assessment (HIA) when an area exceeding 5000 m<sup>2</sup> is being developed. This is to determine if the area contains heritage sites and to take the necessary steps to ensure that they are not damaged or destroyed during development.

Section 38 (1) (a) of the Act also 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;

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- Identify potentially sensitive archaeological areas, and
- Recommend any further mitigation action.

#### 4. DESCRIPTION OF THE RECEIVING ENVIRONMENT

The site for the proposed project is located about 35 kms north east of Prieska. Access to the Eskom Moodraai substation is via a gravel farm road off the R357 Prieska-Douglas Road.

From the Orange River, till the intersection (about 12.5 kms), Alternative 1 is aligned alongside the Smitskloof gravel road. The receiving environment is dominated by extensive diamond prospecting activities where large piles of tailings are visible alongside the road, and an undulating landscape characterised by a combination of thick grassland vegetation, thorny Swarthok, and soft, loose red sands (Figures 3-15). The final 11 kms of the route, till the Moodraai substation follows the existing Moodraai servitude, where the receiving environment comprises a combination of dense Swarthok, thorny scrub, grasslands, and loose gravel (Figures 16-21).

Alternative 2 is a shorter ( $\pm$  19km long), but more direct route that cuts across the landscape, traversing terrain that is infested with thorny Swarthok, loose stony slopes, and veld covered with grasslands, till it connects with the existing Moodraai servitude (Figures 22-24 & refer to Figure 2).

Alternative 2 also crosses several deep, dry river valleys and wide stream beds (refer to Figure 24), and is technically more challenging, requiring substantial infrastructure (such as new access roads).



Figure 3. Footprint area for the proposed Smitskloof Substation A.



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Figure 4. View (south) of Alternative 1 from Substation A.



Figure 5. View (south) of Alternative 1 alongside the Smitskloof road.



Figure 6. Alternative 1 facing south. Note the diamond mining tailings.

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Figure 7. Alternative 1 facing south. Note the dense Swarthok vegetation in the background



Figure 8. Alternative 1 facing south.



Figure 9. Alternative 1 facing south. Note the dense Swarthok vegetation

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Figure 10. Alternative 1 facing south. Note the dense Swarthok vegetation



Figure 11. Alternative 1 facing south



Figure 12. Alternative 1 facing south

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Figure 13. Alternative 1 facing south



Figure 14. Alternative 1 facing south



Figure 15. Alternative 1 facing south.

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Figure 16. The existing Moodraai servitude is the left of the plate. View west



Figure 17. View facing west alongside the existing Moodraai servitude



Figure 18. View facing west alongside the existing Moodraai servitude

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Figure 19. View facing west alongside the existing Moidraai servitude



Figure 20. View facing west alongside the existing Moidraai servitude.



Figure 21. View facing west alongside the existing Moidraai servitude.

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Figure 22. Alternative 2 facing north toward the Orange River



Figure 23. Alternative 2 facing north from the Moodraai servitude



Figure 24. Alternative 2 facing north toward the Orange River.

## **5. STUDY APPROACH**

### **5.1 Method of survey**

The archaeological study entailed the following:

1. Apart from a relatively short ( $\pm$  4.5 km long) section alongside the existing Moodraai servitude, almost the entire length of Alternative 1 was surveyed on foot.
2. The footprint area for both the proposed and proposed alternative, new substations (A & B) was searched for archaeological remains.
3. Two short sections (about 4.5 kms in total) of Alternative 2 were searched on foot.
4. A desk top study was done.

The site visit and assessment took place on the 2<sup>nd</sup> and 3<sup>rd</sup> August, 2012.

A track path of the archaeological survey was created (refer to Figure 45 in Appendix I).

### **5.2 Constraints and limitations**

There are long sections alongside the Smitskloof gravel road, including a large portion of the route alongside the Moodraai servitude, that are covered in dense, thorny Swarthok, and grassland vegetation, resulting in almost zero access and poor archaeological visibility. However, there are sections alongside the Moodraai road and the servitude where vegetation cover is thin and visibility consequently very good.

### **5.3 Identification of potential risks**

Archaeological remains will be impacted by the proposed development, but it is maintained that the AIA has captured a good record of the archaeological heritage present, that is also representative of the surrounding area.

It has not yet been decided what powerline structures will be used, which will determine the footprint area that will be physically impacted. For the single strain monopole (Figure 25); depending on size of the structure, ground dimension ranges between 3m x 9m. Steel lattice structures (Figure 26) have four feet and the ground dimension may vary in size from 1.4m x 1.4m, to 2.6m x 2.6 m.

### **5.4 Results of the desk top study**

The archaeology of the Northern Cape is rich and varied covering long spans of human history. Beaumont *et al* (1995:240) claim that “thousands of square kilometres of Bushmanland are covered by a low density lithic scatter”. According to Morris (2010), the vicinity near Prieska includes several well-known Middle (MSA) and Later Stone Age (LSA) sites along the Orange River, and a small LSA shelter on Prieska Kop just outside the town has also been documented. Morris (2010) recorded surface scatters of mostly



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LSA and some MSA tools during an assessment for a proposed new cemetery in Prieska. Beaumont (2005) describes Early, Middle and Later Stone Age material north of Prieska, and van Ryneveld (2006) describes MSA and LSA lithics dominated by banded ironstone near Prieska. Relatively large numbers of MSA and LSA tools, including some enigmatic pieces, were documented during a study for a proposed solar energy farm, about 5 kms north east of Prieska alongside the Prieska-Douglas road (Kaplan 2011).

At Bundu near Copperton (about 60 west of Prieska), a series of dried up deflated pans have been excavated by Kiberd (2002, 2006). Pans would have acted as focal points for grazing animals, but also a source of water. A complex series of sedimentary features and horizons in these pans may be broadly coeval with periods of climatic change in the region (Kiberd 2006). Archaeological material was recovered from throughout the sedimentary sequence. Large numbers of LSA tools occur on the surface of the pan and within the upper red sands and include micro-lithic tools, while below the red sands, MSA lithics mainly in quartzite, and preserved fauna were found. ESA tools, preserved fauna and even the possible discovery of an ESA hearth, which may be older than 300 000 years, was also excavated.

Kaplan (2010) also undertook an AIA for a proposed solar power farm near Copperton, where large numbers of Later and Middle Stone Age material were documented. Wilshire and Kaplan (2011) documented large numbers of MSA and LSA tools in banded ironstone during a study for a proposed wind energy farm in Copperton. In addition to the pre-colonial heritage, several stone walled heritage features/structures were also mapped.



Figure 25. Example of single strain monopole



Figure 26. Example of steel lattice structure

## 6. FINDINGS

### 6.1 Alternative 1

More than 300 stone tools were counted along the proposed powerline route. The majority of the implements were found alongside the existing Moidraai servitude (C), where large sections of the route are covered in thorny Swarthok vegetation. Most of the finds comprise single, isolated occurrences, but a low density scatter of tools was encountered near a degraded drainage channel/fence line, about 2 kms from the Moidraai Substation (refer to Figure 46 in Appendix I).

Small numbers of tools were also encountered alongside the Smitskloof gravel road that leads to the Orange River, where long sections of the proposed route have been degraded by diamond prospecting activities. Sections of the route are also covered in dense Swarthok vegetation, and thick grass. Most of the tools were recovered alongside the road immediately south of the proposed Moidraai substation (A), where the terrain is very stony (and degraded), and alongside the final section of the route (B) just before the intersection (refer to Figure 46 in Appendix I). Only a few tools were encountered on the softer red sands.

The majority of the archaeological remains that have been documented are assigned to the Middle Stone Age (MSA) and include retouched (including step flaked) and utilized, triangular shaped, and pointed flakes, flaked chunks and round cores. Several chunky retouched and utilized blade tools were also noted. A few formal tools including convex and side scrapers were also found.

The tools are not unlike those that were documented during a study for the proposed Prieska solar energy farm (Kaplan 2011), but the large chunky retouched blade tools, including a Natural Backed Knife (NBK) and other enigmatic forms that were found on the Prieska SEF site, appear to be lacking in the Moidraai/Smitskloof area.

A few Early Stone Age (ESA) tools were also found, including several large flakes, angular chunks and four Acheleun hand axes.

Several Later Stone Age (LSA) flakes were counted, but no organic remains such as pottery, bone, beads or ostrich eggshell was found.

98% of the tools are in banded ironstone which occurs widely in the region. Banded iron stone was favoured by Stone Age people in the Northern Cape because of its superior flaking qualities and sharp cutting edges and almost every piece encountered during the survey has been modified (retouched and utilized).

Small numbers of tools in indurated shale/hornfels and quartzite were also found, and several large heavily weathered hornfels flake tools were found.

A collection of tools documented during the study is illustrated in Figures 27-44.

## **6.2 Alternative 2**

More than 35 implements were encountered in Alternative 2. A handful of MSA tools, including a partially retouched bifacial point and blade, and several flaked chunks, modified flakes and a core (all in banded iron stone) were found on the vegetated and stony slopes south of the Smitskloof road/Orange River (D). A large portion of the route in this area is infested with thorny Swarthok.

MSA flakes, chunks and at least two cores (in banded iron stone and quartzite), several large weathered hornfels flakes and a flat disc core, and two ESA flakes, were also found along a section of the route that tees off from the existing Moodraai Substation (E). This section of the route was walked till the top of the flat escarpment overlooking the wide river valley below (refer to Figure 24).

## **6.3 Substation A**

About 40 tools were counted in the footprint area of Substation A. Most of the tools are assigned to the MSA and include a few pointed and retouched flakes, modified/utilised/retouched flakes, chunks and cores. One beautifully crafted ESA hand axe was also encountered among the red sands and stony veld. A few LSA flakes were also recorded.

## **6.4 Substation B**

A broken quartzite flake and banded iron stone chunk were found in the footprint area of Substation B. The area has been cleared for centre pivot irrigation and comprises mainly soft red sands.

## **6.5 Significance of the archaeological remains**

As archaeological sites are concerned, the occurrences that have been documented are all lacking in context. Most of the tools are of mixed age on eroded surfaces. No evidence of any factory or workshop site, or the result of any human settlement was identified. No organic remains such as bone, pottery or ostrich eggshell was found.

Overall, the fairly small numbers isolated and disturbed context in which they were found means that the archaeological remains have been rated as having low (Grade 3C) significance.

Archaeological study proposed construction of the Moodraai-Smitskloof powerline and substation near Prieska



Figure 27. Tools from substation A. Scale is in cm



Figure 28. Tools from substation A. Scale is in cm



Figure 29 Hand axe from substation A. Scale is in cm



Figure 31. Tools among tailings alongside road (A). Scale is in cm



Figure 30. Tools alongside the road (A). Scale is in cm



Figure 32. Tools alongside the road (B). Scale is in cm

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Figure 33. Tools alongside the road (A). Scale is in cm



Figure 36. Tools alongside servitude (C). Scale is in cm



Figure 34. Tools alongside Moodraai servitude (C). Scale is in cm



Figure 37. Tools alongside Moodraai servitude (C). Scale is in cm



Figure 35. Tools alongside Moodraai servitude (C).



Figure 38. Tools alongside servitude (C). Scale is in cm

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Figure 39. Tools alongside servitude (C). Scale is in cm



Figure 42. Tools from Alternative 2 (E). Scale is in cm



Figure 40. Tools alongside servitude (C). Scale is in cm



Figure 43. Tools from Alternative 2 (E). Scale is in cm



Figure 41. Tools from Alternative 2 (D). Scale in cm



Figure 44. Tools from Alternative 2 (E). Scale is in cm

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## 6.6 Graves

No graves or stone cairns were found during the assessment of Alternative 1, alongside the Smitskloof road, or alongside the alignment of the Moodraai servitude. However, it is noted that long sections of the proposed route are covered in thick Swarthok and grassland vegetation, resulting in low archaeological visibility.

No graves or stone cairns were found during the short assessment of Alternative 2, but graves may occur in those sections of the proposed route that were not searched.

## 7. PREDICTED IMPACTS

It is maintained that the specialist study has captured good information on the archaeological heritage present, and that the study has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to proposed development activities.

Some tools may be uncovered during vegetation clearing operations, but it is anticipated that such finds will not be very different from those already documented and described above.

Overall, the results indicate that the construction of the proposed Moodraai-Smitskloof 132/22 Kv powerline and substation near Prieska will not have an impact of great significance on these and potentially other archaeological remains.

While it is expected that some archaeological impacts will occur the overall impact on important archaeological resources is rated as **low** (Tables 1-4).

**Note:** Indications are that the proposed new location site for Substation A (refer to Figure 46 in Appendix II) will not impact on important archaeological heritage, even though the footprint area was not physically searched by the archaeologist. The proposed new site is situated much closer to Substation B where only two tools were encountered in a highly degraded landscape.

Potential Impact:	Significance rating of impact	Proposed mitigation	Significance rating of impacts after mitigation
<b>Direct Impact</b>			
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
<b>Indirect Impacts</b>			
None			
<b>Cumulative impacts</b>			
None			

Table 1: Assessment of archaeological impacts: Alternative 1

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Potential Impact:	Significance rating of impact	Proposed mitigation	Significance rating of impacts after mitigation
<b>Direct Impact</b>			
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/lielihood: Very Unlikely (1) Degree of Confidence/ Certainty: Definite  Rating
<b>Indirect Impacts</b>			
None			
<b>Cumulative impacts</b>			
None			

Table 2: Assessment of archaeological impacts: Alternative 2

Potential Impact:	Significance rating of impact	Proposed mitigation	Significance rating of impacts after mitigation
<b>Direct Impact</b>			
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/lielihood: Very Unlikely (1) Degree of Confidence/ Certainty: Definite  Rating
<b>Indirect Impacts</b>			
None			
<b>Cumulative impacts</b>			
None			

Table 3: Assessment of archaeological impacts: Substation A

Potential Impact:	Significance rating of impact	Proposed mitigation	Significance rating of impacts after mitigation
<b>Direct Impact</b>			
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/lielihood: Very Unlikely (1) Degree of Confidence/ Certainty: Definite  Rating
<b>Indirect Impacts</b>			
None			
<b>Cumulative impacts</b>			
None			

Table 4: Assessment of archaeological impacts: Substation B



## **8. CONCLUSION**

The results of the AIA indicate that the proposed construction of the Mooidraai-Smitskloof 132/22 Kv powerline and substation will not have an impact of great significance on the archaeological landscape.

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

## **9. RECOMMENDATIONS**

With regard to the proposed construction of the Smitskloof-Mooidraai 132/22 Kv powerline and substation near Prieska in the Northern Cape, the following recommendations are made:

1. No further archaeological mitigation is required.
2. Alternative 1 is the archaeologists preferred choice, as a large portion of the proposed route is already disturbed and degraded. No additional infrastructure (e.g. new access roads) will be required and as a result, the overall impact to the archaeological landscape will be low.
3. 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

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Archaeological study proposed construction of the Moidraai-Smitskloof powerline  
and substation near Prieska

Appendix I

Track path of archaeological survey

Archaeological study proposed construction of the Moidraai-Smitskloof powerline and substation near Prieska

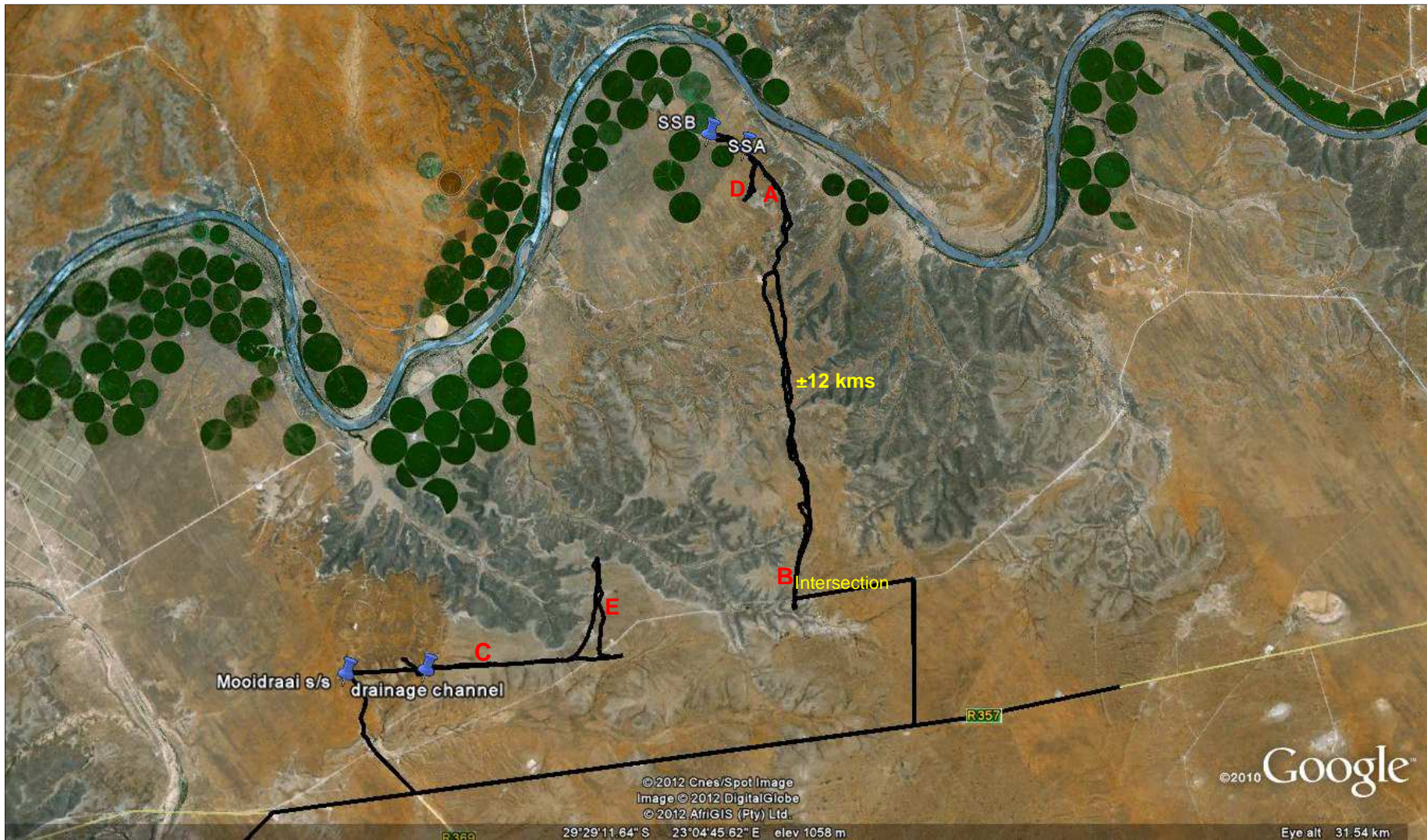


Figure 45. Track path

Archaeological study proposed construction of the Moidraai-Smitskloof powerline  
and substation near Prieska

Appendix II

Site plan indicating new location site for Substation A

Archaeological study proposed construction of the Moidraai-Smitskloof powerline and substation near Prieska

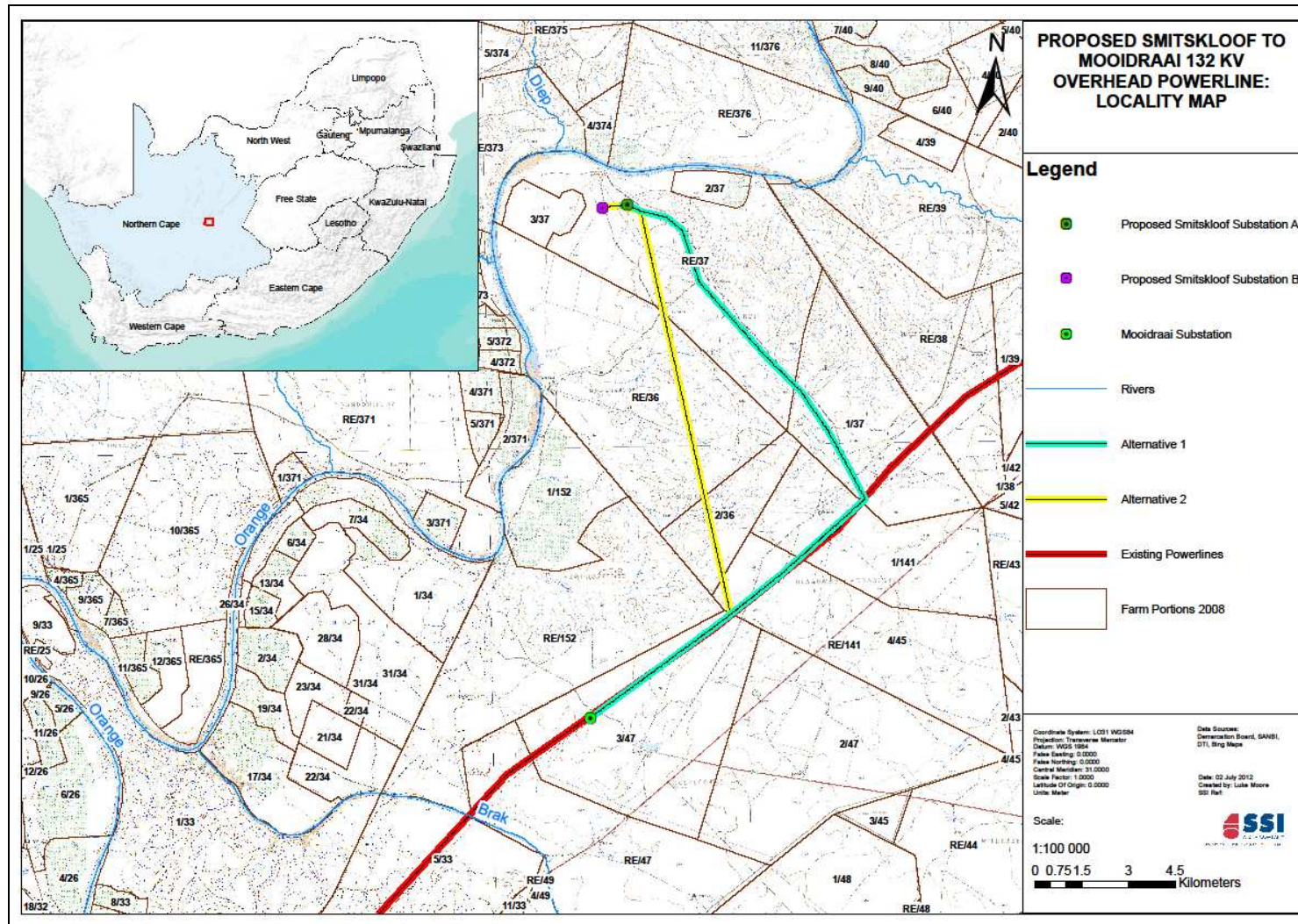


Figure 46. The proposed Smitskloof-Moidraai powerline and substation. Note the new location site for Substation A.