

**AN ARCHAEOLOGICAL IMPACT ASSESSMENT (REPORT 5):
PROPOSED CONSTRUCTION OF A SUBSTATION BETWEEN
FERRUM-GARONA AND ASSOCIATED LOOP IN AND LOOP
OUT LINES, OLIFANTSHOEK, NORTHERN CAPE**

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act No 25 of 1999)

Prepared for:
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EXECUTIVE SUMMARY

The Archaeology Contracts Office at the University of Cape Town was appointed by Nzumbululo Heritage Solutions to undertake the archaeological impact assessment for the proposed construction of five substations between Sishen and Saldanha. The Sishen-Saldanha railway line is currently being strengthened to carry more iron ore to the port.

This report is concerned with the construction of a substation between the existing Ferrum and Garona substations. Three alternative sites have been proposed. They are situated along the power line which runs parallel to the railway line through the farm Rubyvale, west of Olifantshoek in the Northern Cape.

As a result of the desktop review conducted by Webley (2009), the Archaeology and Palaeontology Unit of SAHRA issued a review comment recommending a field assessment. During recent fieldwork on the farm Gaston (Webley, Lanham & Miller 2010), a ceramic Later Stone Age site was located in the foothills of the Langeberg Mountains, some 20km north-east of Rubyvale. The report also high-lighted the likelihood of recovering Early and Middle Stone Age implements on the edges of shallow pans.

Fieldwork was conducted on Rubyvale by Webley and Halkett in March 2010. The survey revealed that the proposed locations are situated near farm roads. They are not located in proximity to any pans or mountains/kopjes. *No archaeological remains were identified and this report concludes that it is unlikely that any will be uncovered during the construction of the substation.* No preference is expressed with regard the placement of the substation and sites 5a, 5b or 5c may be utilised.

All three sites are located in close proximity to existing transmission lines and the loop in and loop out lines will not impact on any archaeological remains.

The contractors should be alert to the possibility of recovering below ground archaeological remains, and work should cease if any of the following are recovered:

- Graves or human remains;
- Concentrations of stone tools, bones, pottery or metal items.

If any of the above are discovered, SAHRA should be alerted to investigate further.

TERMINOLOGY

Engravings: involves the etching of drawings into the rock surface of andesite and dolerite boulders at selected spots in the landscape using several techniques such as 'fine line engravings', pecking and shallow scratches or scrapings.

Early Stone Age (ESA): The archaeology of the Stone Age between 700 000 and 2500 000 years ago.

Fauresmith: This refers to a period at the end of the Early Stone Age, around 200 000 years ago, characterized by small handaxes.

Geometric: designs are found in both paintings and engravings and can include sun-like designs and ladders.

Later Stone Age (LSA): The archaeology of the last 20 000 years associated with fully modern people.

Middle Stone Age (MSA): The archaeology of the Stone Age between 20-300 000 years ago associated with early modern humans.

1. INTRODUCTION

The Archaeology Contracts Office at the University of Cape Town was appointed by Nzumbululo Heritage Solutions to undertake archaeological impact assessment for the proposed construction of five substations along the Sishen-Saldanha railway line and is situated between Sishen in the Northern Cape and Saldanha in the Western Cape. This report is concerned with the sub-station between Ferrum and Garona. It is situated to the east of Olifantshoek on the N14 between Upington and Kuruman, Northern Cape (Figure 1).

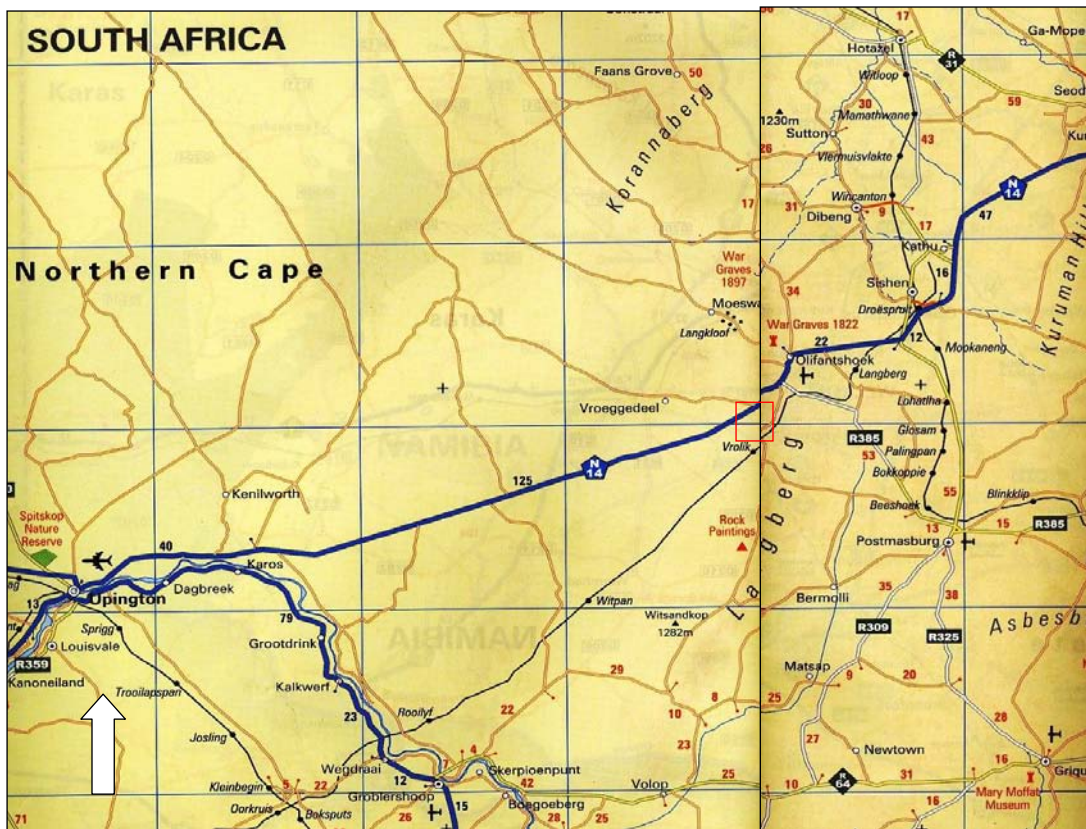


Figure 1: Map 1:250 000 scale of the Northern Cape. The area for the substation is indicated with a red rectangle. It is situated south-west of Olifantshoek.

2. PROJECT DESCRIPTION

The expansion and refurbishment of the 861 km long rail-line from Sishen to Saldanha is currently under way to cater for increased iron ore exports (Webb 2010). Spoornet's plans for the line include expanding the shunting yards, increasing the length of crossing facilities, introducing new technology

and rolling stock, and replacing the diesel locomotives with electric locomotives. Eskom has agreed to shorten the interval between sub-stations so that Spoornet will be able to use more locomotives per train and ensuring that trains can be made longer.

Three alternative locations have been proposed for a new-substation 5 between the current Ferrum and Garona substations. The preferred site is 5a. The approximate size of each sub-station will be 500m by 500m. The schematic diagram of the development, provided as Figure 3, does not clearly indicate the routes which will be taken by the loop-in and loop-out lines at each sub-station.

The substation between Ferrum and Garona will be a 400/50Kv substation with the following specifications:

- -2x40MVA 275/50Kv single-phase TRFR's;
- -275Kv double busbar;
- - 275Kv turn-in lines of about 20km in total;

3. TERMS OF REFERENCE

The Archaeology Contracts Office was asked to undertake an archaeological impact assessment to determine the:

- Archaeological potential of each of the alternative sites, including any known data on sites in the affected areas or immediate vicinity;
- Conduct a survey of the proposed localities to determine if archaeological resources will be impacted;
- Determine the significance of the sites and the nature of the impact;
- Recommend measures to mitigate the extent of the impact.

4. LEGISLATION

Section 38 (1) of the National Heritage Resources Act (No 25 of 1999) requires that when constructing a road or similar linear developments exceeding 300m in length or developing an area exceeding 5000 m² in extent, the developer must notify the responsible heritage authority of the proposed development and they in turn must indicate within 14 days whether an impact assessment is required.

These particulars do not apply if an evaluation (Section 38(8)) of the impact of development on heritage resources is required in terms of the Environmental Conservation Act, 1989 (No 73 of 1989) as is the case with

this development. However, the Act notes that “any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent”, the heritage authority here being SAHRA National and SAHRA Northern Cape.

The NHRA provides protection for the following categories of heritage resources:

- Landscapes, cultural or natural (Section 3 (3))
- Buildings or structures older than 60 years (Section 34);
- Archaeological Sites, palaeontological material and meteorites (Section 35);
- Burial grounds and graves (Section 36);
- Public monuments and memorials (Section 37);
- Living heritage (defined in the Act as including cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge systems and the holistic approach to nature, society and social relationships) (Section 2 (d) (xxi)).

As a result of the desktop review conducted by Webley (2009), the Archaeology and Palaeontology Unit of SAHRA issued a review comment recommending a field assessment.

5. RECEIVING ENVIRONMENT

According to Miller (Webley, Lanham & Miller 2010) the Hotazel and Sishen-Olifantshoek regions of the Northern Cape are underlain by rocks older than 1000 million years, which makes them too old to contain hard-bodied fossils. The overburden consists mainly of geologically recent Kalahari sand, which in turn is un-fossiliferous. At the interface of the sandy overburden and the rock beneath there is often an indurated layer, mostly calcareous. This may contain fossils in suitable localities, although none have been reported from such contexts in this region to date.

Immediately to the east of the proposed substation is the Langeberg Mountains. They are about 400 m high and run in a north-south direction. They are reported to be comprised of quartzites.

This part of the Northern Cape receives around 201-400 mm of rain in the summer months. The vegetation is termed Bushveld and comprises a variety of shrubs and trees in a mixed grassveld. The country side is generally open and there are no major impediments to archaeological surveys.

The three proposed substations are located on the farm Rubyvale, just south of the R27 between Upington and Olifantshoek. They are close proximity to the existing power lines which run in a north-south direction through the farm.

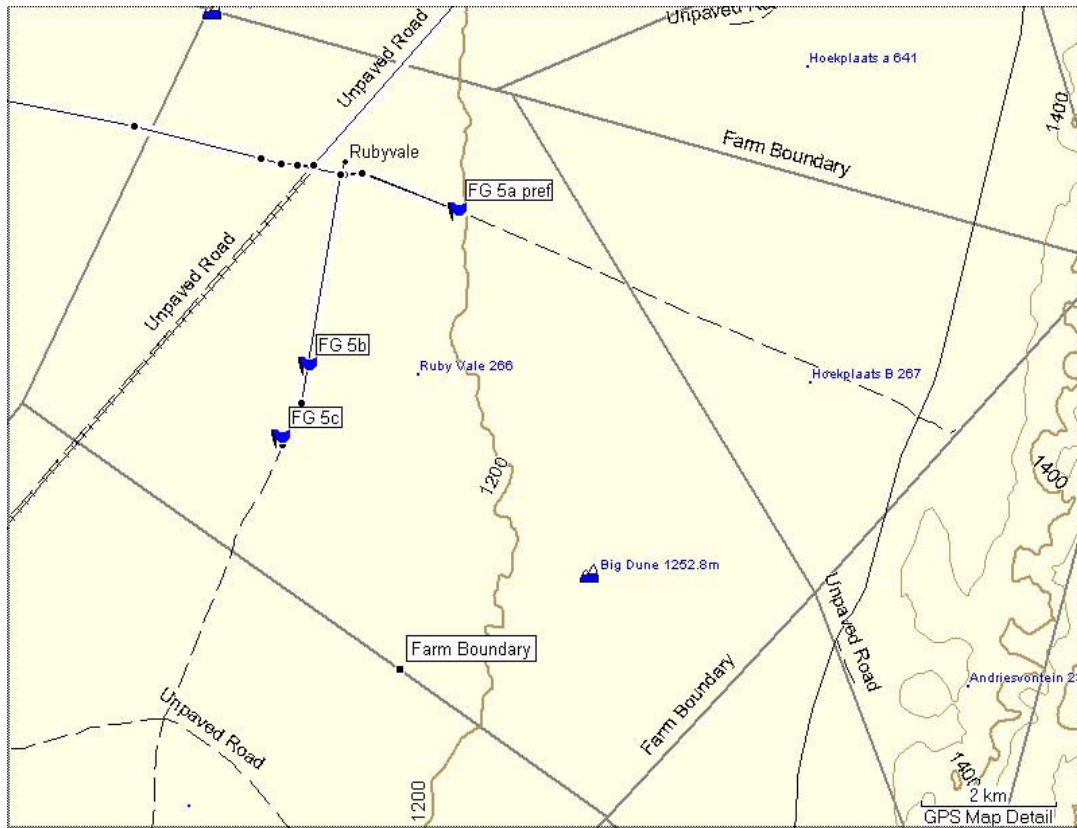


Figure 2: Map of the farm Rubyvale (2822 BA) showing the alternative locations for the substation.

6. ARCHAEOLOGY OF THE AREA

In a desktop review of the literature for the area, Webley (2009) mentioned the possibility of discovering Middle Stone Age artefacts on the dune plains. These have been reported by Morris (2007a) from the Groblershoop area, while Webley, Lanham & Miller (2010) have recovered similar scatters to the east of the Langeberg. These have been found on the edge of calcrete lined pans and in road cuttings.

Both Middle and Later Stone Age sites have been reported from amongst the dunes to the south of the Langeberg, at Witsand (Morris 1990). The LSA occurrence here is termed the Wilton and includes scrapers and backed pieces. Some sites also contain pottery and are termed Ceramic LSA

assemblages. Webley, Lanham & Miller (2010) have found a ceramic LSA site on the farm Gaston some 20km north-east in the foothills of the Langeberg Mountains.

Morris (1988) refers to simple geometric rock paintings in the Langeberg and Korannaberg ranges, while an engraved site has been found in the Korannaberg but this site is many kilometres to the north of the proposed substation. No engraved sites were discovered during the Webley, Lanham and Miller (2010) survey of the area to the east of the Langeberg.

Morris (1990) also reported that the area to the west of the Langeberg was once settled by the BaTlhaping. He notes that 35 km due north of Witsand lies the modern farm of Nokanna, which he says equates with the former BaTlhaping capital of Nokana or Nokaneng. The farm of Nokanna is barely 10 km north-west of the proposed substation. Historically, this area was penetrated by the Trekboers during the late 19th century.

7. METHOD OF STUDY

The locations of the proposed substations were loaded onto handheld GPS receivers (set to the WGS84 datum) to facilitate the identification of the search area during field work. Fieldwork was undertaken by Lita Webley and David Halkett during the week 29 March to 1 April 2010. Walk paths and site locations were recorded with GPS and finds were photographed and described. A brief interview was conducted with the owner of Rubyvale, Mr FW Uys, and he confirmed that he has not observed any archaeological or historical remains in the area identified for the substation.

7.1 Limitations

We were provided with the following GPS co-ordinates for the location of the substation:

Site		
5a (preferred)	S28 12 49.8	E22 35 42.4
5b	S28 14 04.6	E22 34 20.5
5c	S28 14 39.3	E22 34 06.0

These GPS locations place the alternative locations for the substation on the edge of farm roads on Rubyvale. The co-ordinates are considered as "approximations". The general area was surveyed. No shape files were provided for the loop in and loop out lines.

8. RESULTS OF THE SURVEY

The preferred site, 5a is located underneath the power lines and positioned adjacent to the gravel farm road. The area comprises red dune soils covered in knee-high grass and Camel Thorn (*Acacia erioloba*) trees. Sites 5b and 5c are located on another farm road, in close proximity to the overhead transmission lines. No archaeological remains were recovered in this vicinity. The farmhouse of Rubyvale is located some distance away and there are no historical remains in this area.



Plate 1: Location of site 5a. Plate 2: Position of Site 5b. They are positioned in the red sands of the plains which are covered in grass and thorn trees.

9. SIGNIFICANCE OF SITES AND IMPACT OF DEVELOPMENT

While the desktop study suggested that the area had potential to provide significant information relating to the pre-colonial occupation of this part of the Northern Cape, the survey did not identify any archaeological sites. The substation will be constructed on the open plains. It is some distance from the closest dwellings and it is not anticipated that any structures or graves will be impacted.

10. RECOMMENDATIONS

The survey revealed that the proposed locations are situated near farm roads. They are not located in proximity to any pans or mountains/kopjes. No archaeological remains were identified and this report concludes that it is

unlikely that any will be uncovered during the construction of the substation. No preference is expressed with regard the placement of the substation and sites 5a, 5b or 5c may be utilised.

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11. ACKNOWLEDGEMENTS

Mr FW Uys of the farm Rubyvale is thanked for his hospitality and information regarding archaeological and historical material on his farm.

The following individuals have kindly provided information on unpublished data and discussed their views on the archaeological significance of the area with me: Mr David Morris (McGregor Museum, Kimberley).

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Figure 3: Schematic diagram of the substations and associated infrastructure.

