Phase 1 Heritage Impact Assessment for the proposed new Klipkop-Wessels 132kV line near Hotazel, NC Province.

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Summary

A Phase 1 Heritage Impact Assessment was carried out for the proposed new, 8 km long, Klipkop-Wessels 132 kV powerline near Hotazel in the Northern Cape Province. The proposed footprint is exclusively underlain by well-developed, wind-blown sands covering low relief terrain. No fossils were observed within the aeolian overburden as anticipated, since it is generally not expected to be fossiliferous in the absence of karst topography, pans, springs or well-developed alluvial deposits in this case. The investigation also confirms results from a previous study when the section was inspected as part of the proposed Lehating 132kV line in 2015, showing that the development will not impact *in situ* Stone Age archaeological remains, of rock art (engravings), graves, stonewalled structures or historically significant buildings older than 60 years. The proposed footprint is considered to be of low archaeological significance and assigned a rating of Generally Protected C. As far as the heritage component is concerned, the proposed development may proceed, provided that all excavation activities are restricted to within the boundaries of the linear footprint.

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Introduction

A Phase 1 Heritage Impact Assessment was carried out for the proposed new, 8 km long, Klipkop-Wessels 132 kV powerline near Hotazel in the Northern Cape Province (**Fig. 1**).

The primary legal trigger for identifying when heritage specialist involvement is required in the Environmental Impact Assessment process is the National Heritage Resources (NHR) Act (Act No 25 of 1999). The NHR Act requires that all heritage resources, that is, all places or objects of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures over 60 years of age, living heritage and the collection of oral histories, historical settlements, landscapes, geological sites, palaeontological sites and objects.

The NHRA identifies what is defined as a heritage resource, the criteria for establishing its significance and lists specific activities for which a heritage specialist study may be

required. In this regard, categories relevant to the proposed development are listed in Section 34 (1), Section 35 (4), Section 36 (3) and Section 38 (1) of the NHR Act and are as follows:

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.

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;
- *b)* destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

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

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) 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 a formal cemetery administered by a local authority; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph *(a)* or *(b)* any excavation equipment, or any equipment which assists in the detection or recovery of metals.

38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

- The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- The construction of a bridge or similar structure exceeding 50m in length;
- Any development or other activity which will change the character of the site

a) exceeding 5000 m² in extent; or

b) involving three or more existing erven or subdivisions thereof; or

c) involving three or more subdivisions thereof which have been consolidated within the past five years;

- The rezoning of a site exceeding 10 000 m²; or
- Any other category of development provided for in regulations by the South African Heritage Resources Agency (SAHRA).

Methodology

The archaeological and palaeontological significance of the affected area were evaluated based on existing field data, database information and published literature. This was followed by a field assessment by means of a pedestrian survey of the proposed powerline route. A Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera were used for recording purposes. Relevant heritage information, aerial photographs and site records were consulted and integrated with data acquired during the on-site inspection.

Potential impacts on heritage resources are summarized in **Table 1** and site significance classification standards, a prescribed by SAHRA, were used for the purpose of this report (**Table 2**).

Terms of reference:

- Identify and map possible heritage sites and occurrences using available resources.
- Determine and assess the potential impacts of the proposed development on potential heritage resources;
- Recommend mitigation measures to minimize potential impacts associated with the proposed development.

Site Information

1 : 50 000 scale topographic map: 2722 BB Hotazel

1 : 250 000 scale geological map 2722 Kuruman

Proposed development entails the construction of an 8 km-long 132 kV powerline that will transect the farms Wessels 227, Santoy 230, Belgravia 264 and Mukulu 265 between the Wessels and Black Rock Mines at Hotazel (**Fig. 2 & 3**).

Powerline coordinates (**Fig. 2**):

A) 27° 6'57.73"S 22°51'13.03"E

B) 27° 6'58.35"S 22°50'59.48"E

C) 27° 7'6.26"S 22°51'0.14"E

D) 27° 7'9.44"S 22°50'55.91"E

E) 27° 6'48.89"S 22°49'55.74"E

F) 27° 6'53.53"S 22°49'31.81"E

G) 27° 7'37.57"S 22°49'25.01"E

H) 27° 8'26.04"S 22°49'53.65"E

I) 27° 8'31.23"S 22°50'33.43"E

J) 27° 8'14.40"S 22°50'38.99"E

Background

According to the 1:250 000 scale geological map 2722 Kuruman (Published by the Council for Geoscience, Pretoria, 1977) the proposed development footprint is underlain by moderately significant, late Neogene Kalahari Group sediments (*Qs),* unconformably resting on Transvaal Supergroup rocks (**Fig. 4**). There are currently few records of substantial Quaternary fossil occurrences or in situ Stone Age archaeological sites in the Hotazel area (**Fig. 5**). Tufa deposits along the eastern edge of the Ghaap Plateau at Lime Acres and Norlim (Buxton) near Taung contain solution cavities which have yielded Quaternary fossil remains of several extinct mammalian species, including the type specimen of *Australopithecus australis* (Thabaseek Tufa) discovered by Raymond Dart in 1924. Fossil faunal remains and associated Early and Middle Stone Age artefacts are known from Quaternary spring sediments at Kathu Pan, situated northwest of the town of Kathu and about 45 km south of Hotazel. The archaeological footprint of the region is widespread. Several Early Stone Age (ESA) sites, containing Victoria West cores, handaxes and cleavers have been recorded along the Harts River, a tributary of the Vaal River, near Taung. Wonderwerk Cave situated halfway between Kuruman and Danielskuil, is also an important archaeological repository. Dolomite terraces and exposed valley floors along the Kuruman River valley are at places decorated with rock engravings that reflect colonial and LSA/Iron Age frontier interactions. Sites found northwest of Kuruman, include Gamohaan, Maropeng,

Batlharos and Mahakane. The region was previously occupied by Tswana-speaking (Tlhaping and Tlharo) communities who settled in the Langeberg region throughout the late 18th century. The Tlhaping and Tlharo branches, who entered the northern Cape from the north at the beginning of the 17th century, reached as far south as Majeng (Langeberg), Tsantsabane (Postmasburg) and Tlhake le Tlou (Danielskuil) by the beginning of the 18th century (Snyman 1986). A large Thlaping settlement was established at Nokaneng, about 40 km southwest of Olifantshoek, while the Tlharo largely occupied the Langeberg region between Ditlou (Olifantshoek) and Dibeng (Deben) (Maingard 1933). The farm Nokanna, situated about 35 km north of Witsand, equates with the former BaTlaping capital of Nokaneng, where Chief Mothibi was born in about 1775. After clashes with the Koranna and Griqua people, who moved into the area after 1770, the Tlhaping and Tlharo temporarily abandoned Nokanna and the Langeberg at around 1790 to settle around Dithakong (Kuruman) only to return again to the Langeberg at the beginning of the 19th century (Humphreys 1976). At the time of the 1801-1803 Borcherds and Somerville expedition, Dithakong was an important BaTlhaping capital. It was calculated that the number of huts there were at least not less than 1 500 and the number of occupants at somewhere between 8 000 and 25 000. Extensive stonewall enclosures are found on the adjacent hills and archaeological investigations during the 1980's have revealed that the ruins were built during the 15th century A.D. and possibly by sedentary Khoi groups. The area consists of primary and secondary enclosures and cover a total area of about 1 km^2 comprising hundreds of circles of varying size. With the annexation of the region south of the Molopo and north of Griqualand West by the British in 1885, the area became known as British Bechuanaland. Several reservations were established but following a revolt in 1895 known as the Langeberg Rebellion, the reservations were confiscated by the British colonial government, divided up into farms and offered to white settlers.

Field Assessment

The footprint forms part of a previous study when the section was inspected as part of the proposed Lehating 132kV line (Van Schalkwyk 2015). The proposed footprint is exclusively underlain by well-developed, wind-blown sands covering low relief terrain (**Fig. 6**). No fossils were observed within the aeolian overburden as anticipated, since it is generally not expected to be fossiliferous in the absence of karst topography, pans,

springs or well-developed alluvial deposits in this case. As previously indicated by Van Schalkwyk (2015), the development will not impact *in situ* Stone Age archaeological remains, of rock art (engravings), graves, stonewalled structures or historically significant buildings older than 60 years.

Impact Statement and Recommendations

The Quaternary-aged aeolian overburden capping the linear footprint (*Qs*, **Fig 4**) is not regarded palaeontologically sensitive. The investigation also confirms results from a previous study when the section was inspected as part of the proposed Lehating 132kV line (Van Schalkwyk 2015). The proposed footprint is considered to be of of low archaeological significance and assigned a rating of Generally Protected C (**Table 2**). As far as the archaeological heritage is concerned, the proposed development may proceed, provided that all excavation activities are restricted to within the boundaries of the linear footprint.

References

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DECLARATION OF INDEPENDENCE

Paleo Field Services act as an independent specialist consultant and do not or will not have any financial interest in the undertaking of the activity other than remuneration for work as stipulated in the terms of reference. Paleo Field Services has no interest in secondary or downstream developments as a result of the authorization of this project.

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Tables and Figures

Table 1: Heritage contexts and resources likely to occur within these contexts, and likely sources of heritage impacts in the region.

Heritage Context	Heritage Resources	Impact
Palaeontology	Precambrian shallow marine and lacustrine stromatolites, organic-walled microfossils, Neogene regolith	Road cuttings Quarry excavation Bridge and pipeline construction (Quaternary alluvial deposits)
Archaeology Early Stone Age Middle Stone Age LSA - Herder Historical	Types of sites that could occur in the Free State include: Localized Stone Age sites containing lithic artifacts, animal and human remains found near *inter alia* the following: River courses/springs Stone tool making sites Cave sites and rock shelters Freshwater shell middens Ancient, kraals and stonewalled complexes Abandoned areas of past human settlement Burials over 100 years old Historical middens Structural remains Objects including industrial machinery and aircraft	Subsurface excavations including ground levelling, landscaping, foundation preparation, road building, bridge building, pipeline construction, construction of electrical infrastructure and alternative energy facilities, township development.
History	Historical townscapes, e.g. Kimberley Historical structures, i.e. older than 60 years Historical burial sites Places associated with social identity/displacement, Historical mission settlements	Demolition or alteration work. New development.
Natural Landscapes	Formally proclaimed nature reserves Evidence of pre-colonial occupation Scenic resources, e.g. view corridors, viewing sites, Historical structures/settlements older than 60 years Geological sites of cultural significance.	Demolition or alteration work. New development.
Relic Landscape Context	Battle and military sites Precolonial settlement and burial sites Historical graves (marked or unmarked, known or unknown) Human remains (older than 100 years) Associated burial goods (older than 100 years) Burial architecture (older than 60 years)	Demolition or alteration work. New development.

Table 2. Field rating categories as prescribed by SAHRA.

Field Rating	**Grade**	**Significance**	**Mitigation**
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

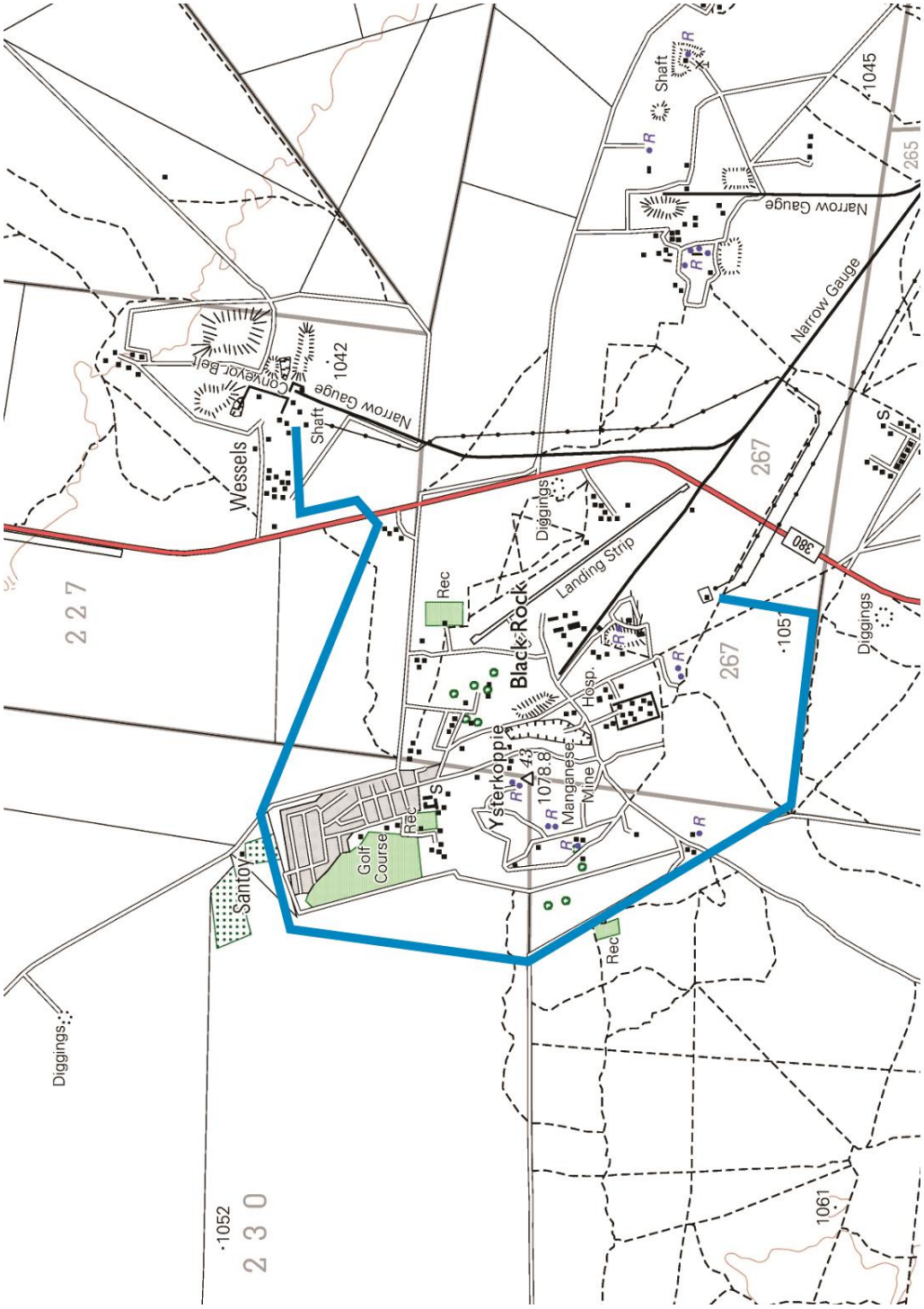

Figure 1. Map of the propoesd new Klipkop-Wessels 132kV line marked on portion of 1:50 000 scale topographic map 2722 BB Hotazel.

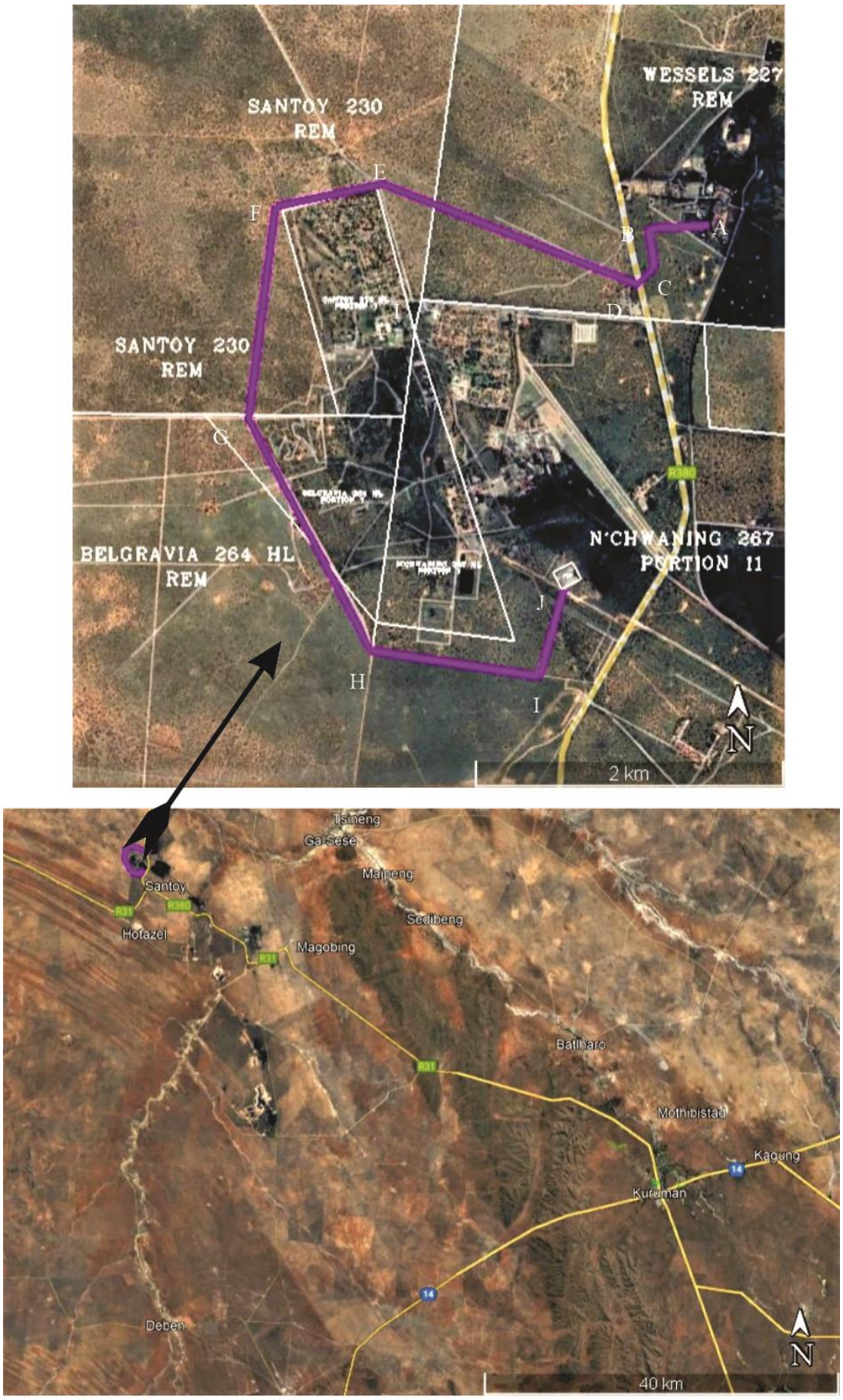

Figure 2. Aerial view of the proposed development.

Figure 3. General view of the study area, Section C - E (top), Section E-F (center) and Section I - J (below).

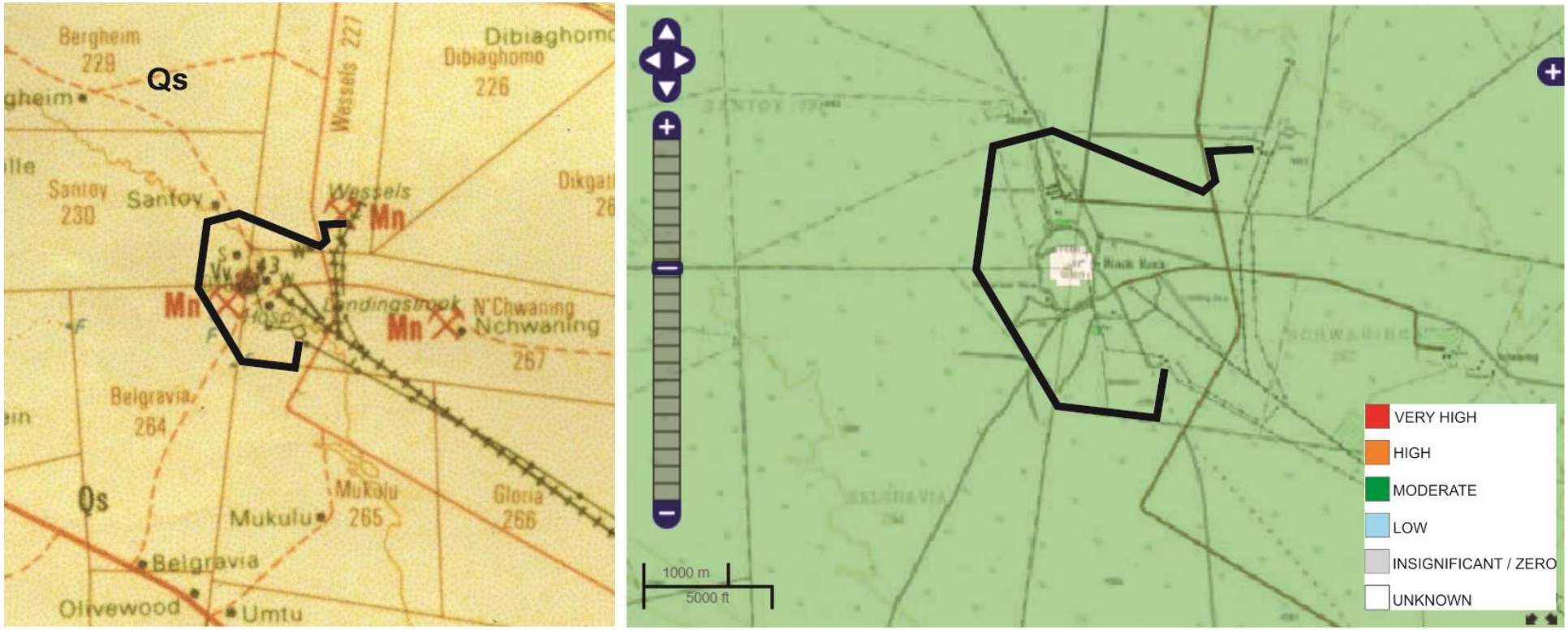

Figure 4. Proposed powerline footprint shown on portion of 1:250 000 geological map 2722 Kuruman (left) and SAHRIS palaeosensitivity map (right)

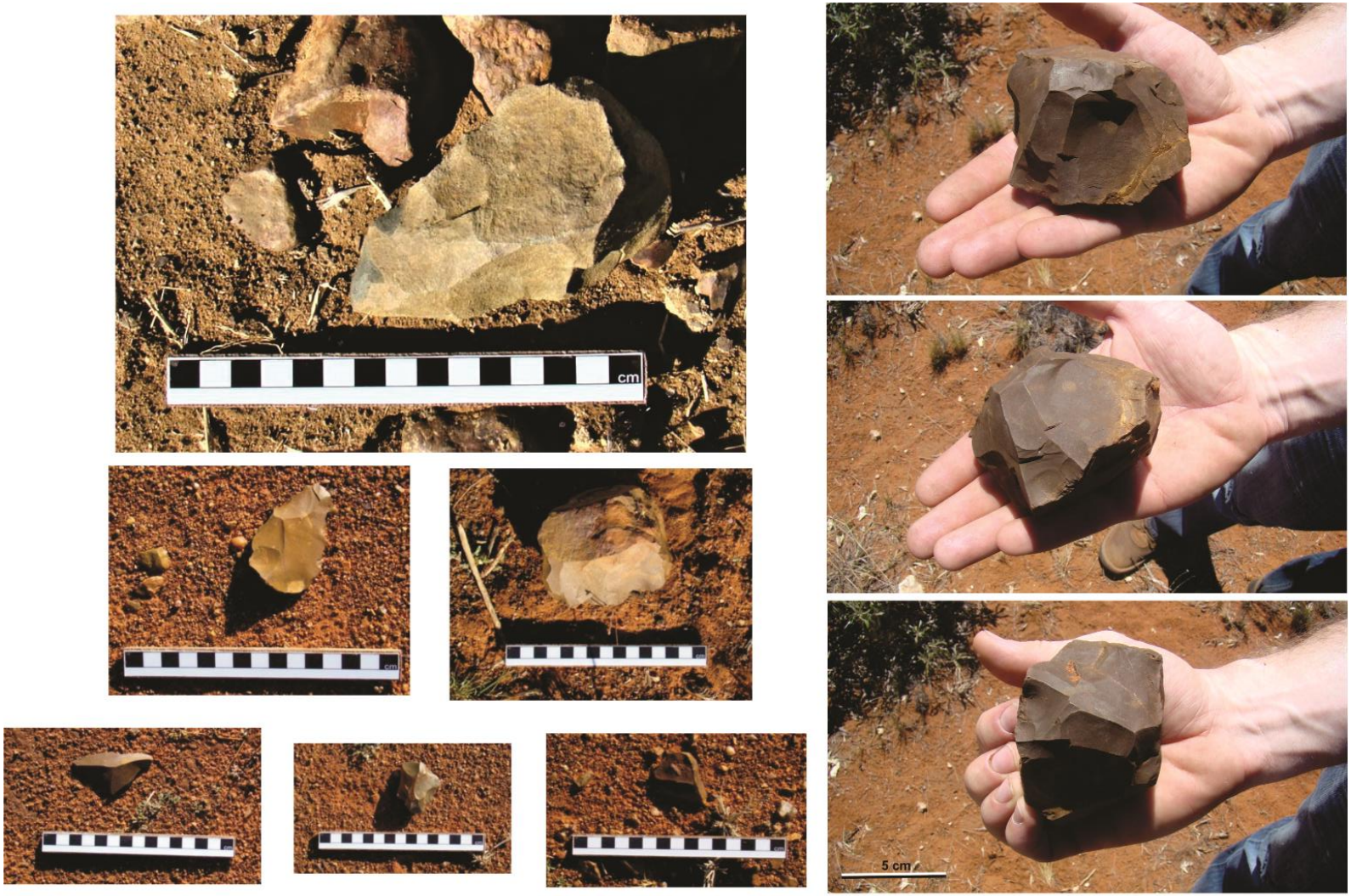

Figure 5. Examples of Stone Age artefacts previously recorded in the Hotazel area.

Figure 6. The proposed footprint is exclusively underlain by well-developed, wind-blown sands covering low relief terrain.