Phase 1 Heritage Impact Assessment of proposed installation of a new irrigation pivots on the farm Reliance No. 347 near Griekwastad, Northern Cape Province.

Report prepared by
Palaeo Field Services
PO Box 38806, Langenhovenpark
9330
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Summary

A Phase 1 Heritage Impact Assessment was carried out for the proposed installation of new irrigation pivots and associated infrastructure altogether covering 140 ha of farmland on the farm Reliance No. 347, located about 11 km northwest of Griekwastad in the Northern Cape Province. The terrain as a whole is capped by a thick mantle of aeolian sand that appears to be superficially sterile in terms of Stone Age cultural remains. There are no indications of prehistoric structures or rock art within the footprint area. There is also no aboveground evidence of informal graves or historically significant structures older than 60 years within the confines of the footprint. The study area is located within a historically as well as prehistorically significant landscape. However, the field assessment indicates that the proposed pivot development will primarily affect geologically recent soils in the form of well-developed wind-blown sand. The base of the aeolian Kalahari Group sands, which cover vast areas in the region, have previously produced localized densities of Early and Middle Stone Age artifacts, but given that pivot farming largely effect the uppermost soil layer, impact on potentially intact Stone Age archaeological remains within the footprint is considered unlikely. Given the nature of the proposed development (installation of aboveground pivots), the terrain is not considered archaeologically vulnerable and is assigned a site rating of Generally Protected C.

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Introduction

A Phase 1 Heritage Impact Assessment was carried out for the proposed installation of new irrigation pivots and associated infrastructure altogether covering 140 ha of farmland on the farm Reliance No. 347, located about 11 km northwest of Griekwastad in the Northern Cape Province (**Fig. 1 & 2**). The extent of the proposed development (over 5000 m^2) falls within the requirements for a Heritage Impact Assessment (HIA) as required by Section 38 (Heritage Resources Management) of the South African National Heritage Resources Act (Act No. 25 of 1999). The site visit and subsequent assessment took place in November 2013. The task involved identification of possible archaeological and paleontological sites or occurrences in the proposed zone, an assessment of their significance, possible impact by the proposed development and recommendations for mitigation where relevant.

Methodology

The heritage significance of the affected area was evaluated through a desktop study and carried out on the basis of existing field data, database information, published literature and maps. This was followed up with a field assessment by means of a pedestrian survey and investigation of all exposed sections within the footprint. A Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera were used for recording purposes.

Site significance classification standards prescribed by SAHRA (2005) were used to indicate overall significance and mitigation procedures where relevant (**Table 1**).

Description of the Affected Area

Maps: 1:50 000 topographical map 2823 CA Pretoriusvlei and 2823 CC Griekwastad Wes.

Site Coordinates:

A) 28°44'32.14"S 23°12'0.38"E
B) 28°44'25.55"S 23°12'20.88"E
C) 28°44'44.56"S 23°12'40.63"E
D) 28°44'34.90"S 23°13'5.09"E
E) 28°45'37.05"S23°12'50.91"E
F) 28°45'38.64"S 23°12'29.25"E

The combined area covers 140 ha of flat, open terrain of the farm Reliance No. 347 situated about 11 km northwest Griekwastad in Griqualand West (**Fig. 3).**

Background

Palaeontology

The Transvaal Supergroup consists of two major units in Griqualand West, namely the Ghaap and Postmasburg Groups. These 2.67 Ga to 2.07 Ga old successions developed on a continental platform and consists of a series of carbonates, iron formations and siliclastic rocks as well as a minor volcanic component (Beukes 1978). According to the 1 : 250 000 scale geological map 2822 Postmasburg and more recent delineations (Harding 2004), the study area falls within an outcrop area of Ghaap Group strata made up of banded ironstone, amphibolites (metamorphic rock) and flat-pebble conglomerate (*Vak,* Asbestos Hills Subgroup) and considered to be of moderate palaeontological significance (**Fig. 4**). Superficial deposits are made up of surface limestones that are capped by well-developed, reddish-brown wind-blown sands.

Archaeology

Archaeological records and historical eyewitness accounts show evidence of Bushman hunter-gatherer and Khoi herder occupation in the region prior to European settlement (Sampson 1972; Elphick 1977) while early travelers frequently encountered Koranna, Griqua and Bushmen groups in the region (Burchell 1824; Skead 2009) (**Fig. 5 & 6**). At Dikbosch between Kimberley and Griekwastad, a rock shelter located in travertine deposits of the Ghaap Plateau, has yielded LSA artefacts associated with faunal remains. Iron Age occupation is absent from the region as the most southerly distribution of Iron Age settlement in the northern Cape was limited to north of the Orange River by the end of 18th century (Maggs 1974; Humphreys 1976). Historical evidence suggest that the most southerly distribution of Late Iron Age Tswana settlements in the region during the 18th century AD ranged between the Langeberge and what is known today as Witsand (Humphreys 1976). The farm Nokanna, situated about 35 km north of Witsand, equates with the former BaTlaping capital of Nokaneng (Maingard 1933).

The town of Griekwastad was formerly the Klaarwater station of the London Missionary Society, founded in 1802. It was renamed Griquatown in 1813 by the Reverend John Campbell (1766-1840), missionary of the London Missionary Society.

Field Assessment

The field assessment indicates that the study is capped by a thick mantle of (Kalahari Group) aeolian sand of >1.5 m in depth, that appears to be superficially sterile in terms of Stone Age cultural remains (**Fig. 7 & 8**). Several modern farm-related structures were observed, but there are no indications of prehistoric structures or rock art within the footprint area (**Fig. 9**). There is also no aboveground evidence of informal graves or historically significant structures older than 60 years within the confines of the footprint.

Impact Statement and Recommendation

The study area is located within a historically as well as prehistorically significant landscape. However, the field assessment indicates that the proposed pivot development will primarily affect geologically recent soils in the form of well-developed wind-blown sand. The base of aeolian Kalahari Group sands, which cover vast areas in the region, have previously produced localized densities of Early and Middle Stone Age artifacts, but given the apparently sterile condition of the test pits and the fact that pivot farming largely effect the uppermost soil layer, impact on potentially intact Stone Age archaeological remains within the footprint is considered very low. Given the nature of the proposed development (installation of aboveground pivots), the terrain is not considered archaeologically vulnerable and is assigned a site rating of Generally Protected C (**Table 1**).

References

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DECLARATION OF INDEPENDENCE

I, Lloyd Rossouw, declare that I act as an independent specialist consultant. I do not have 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. I have no interest in secondary or downstream developments as a result of the authorization of this project.

20 / 02 / 2018

Tables & Figures

Table 1. 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

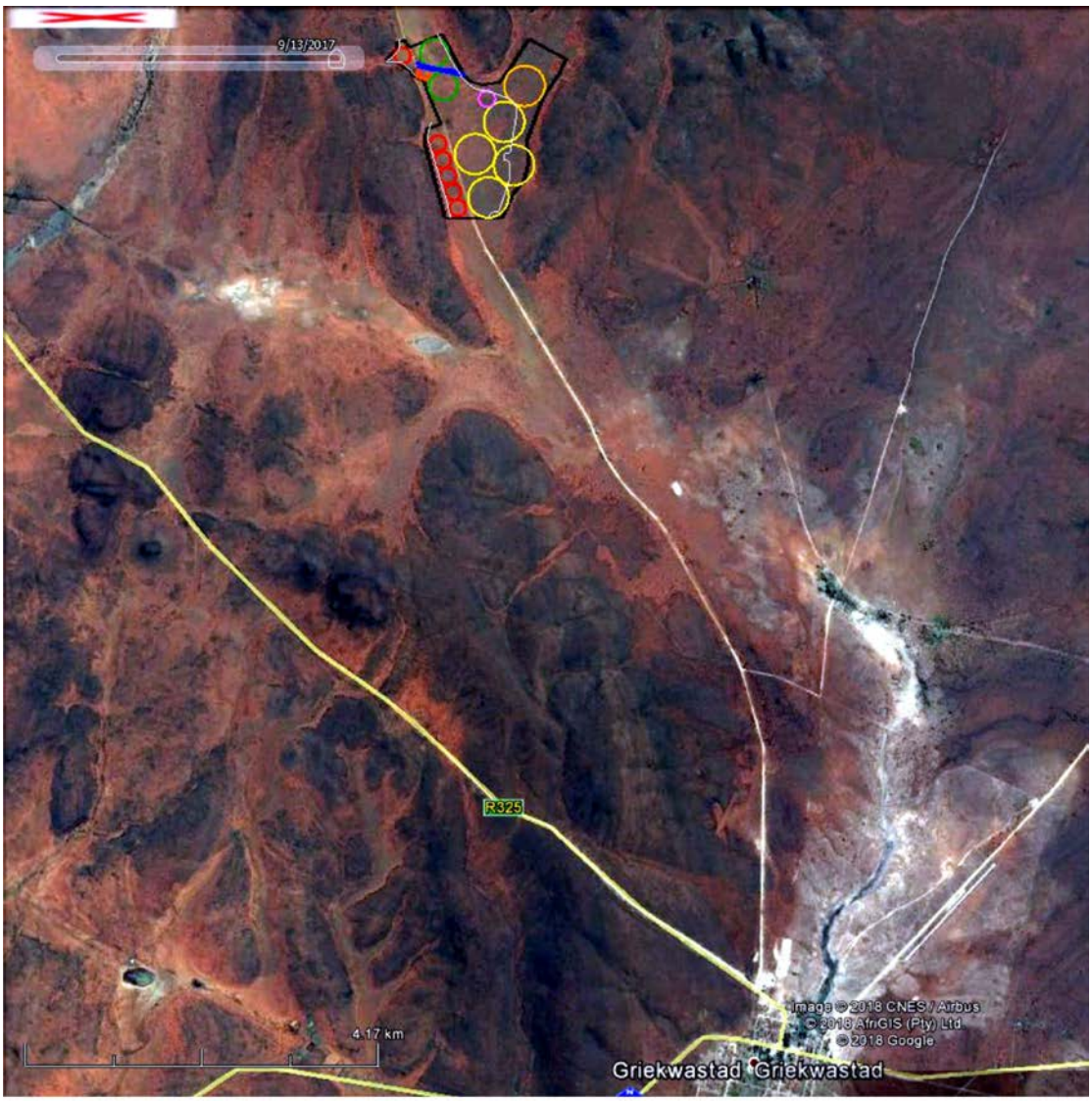


Figure 1. Aerial view of study area on farm La Provence 51 in relation to the position of Griekwastad (portions of 1:50 000 scale topographic maps 2823 CA Pretoriusvlei and 2823 & CC Griekwastad Wes).

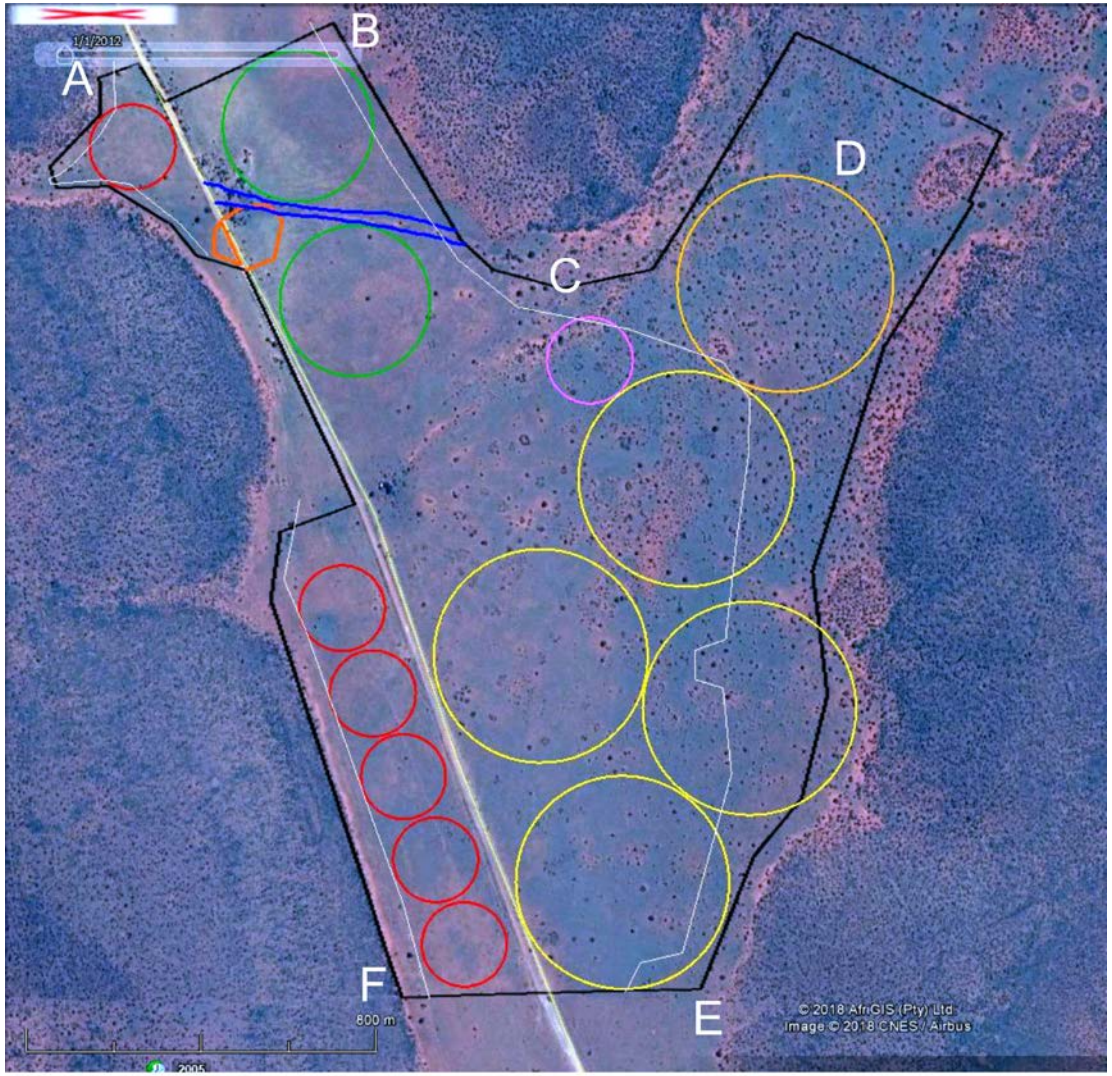


Figure 2. Aerial view of the study area.

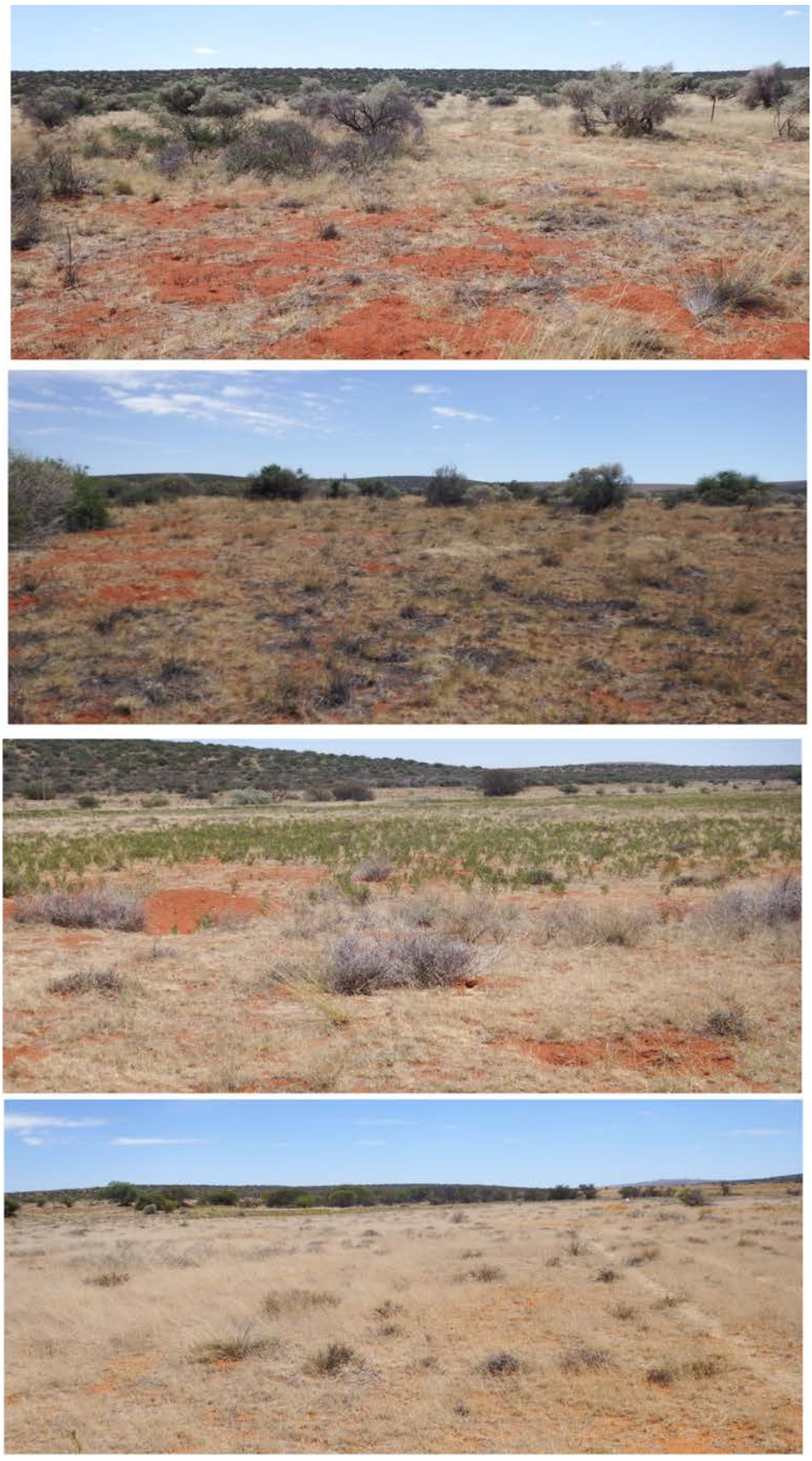


Figure 3. General view of the terrain..

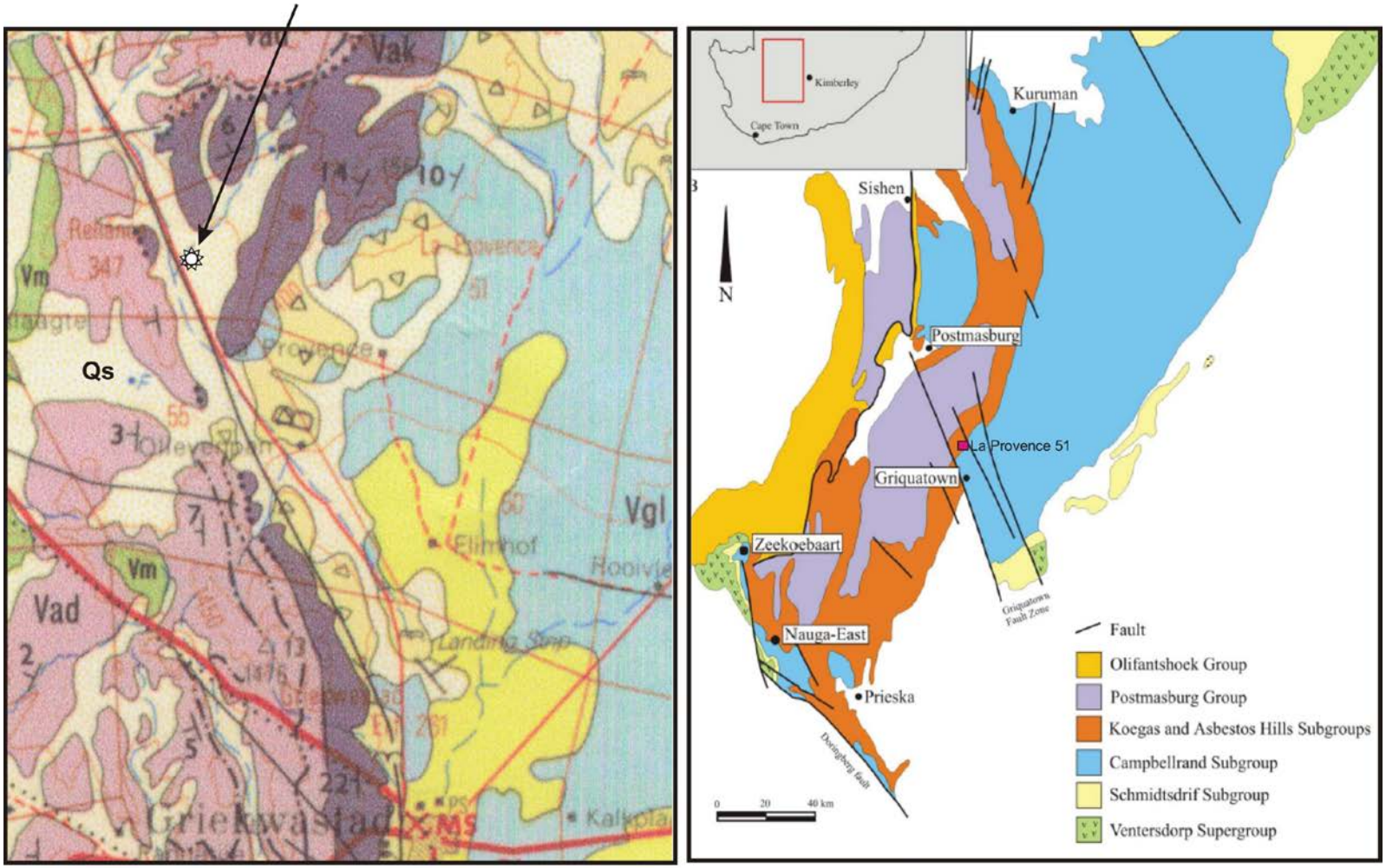
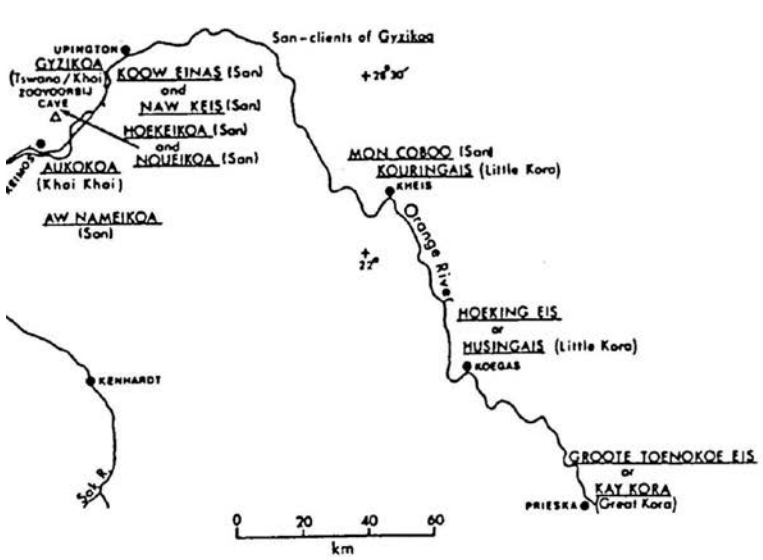
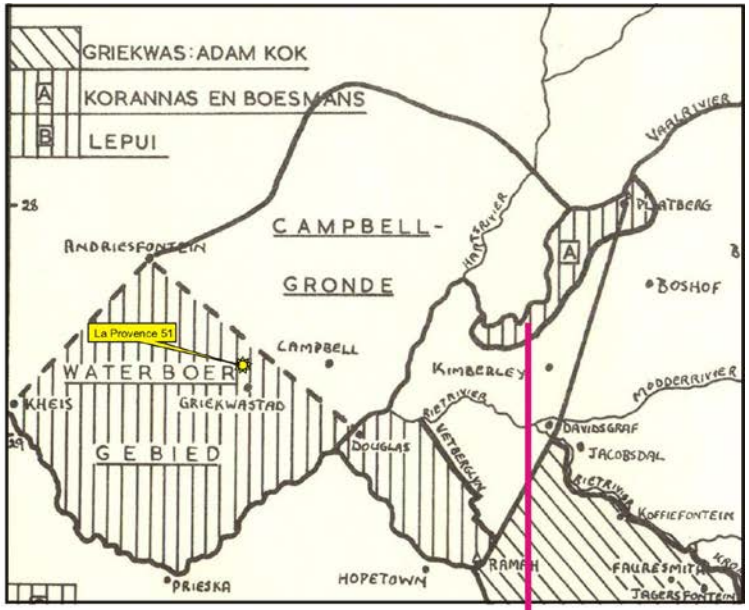


Figure 4. Portion of the 1:250 000 scale geological map (2822 Postmasburg) showing position of study area (arrow, left) and distribution map of Transvaal Supergroup strata in the region (Harding 2004) (right)

Figure 5. Major palaeontological and archaeological localities in the region between Griekwastadin the south, Vryburg in the north, Olifantshoek in the east and Hoopstad in the west.





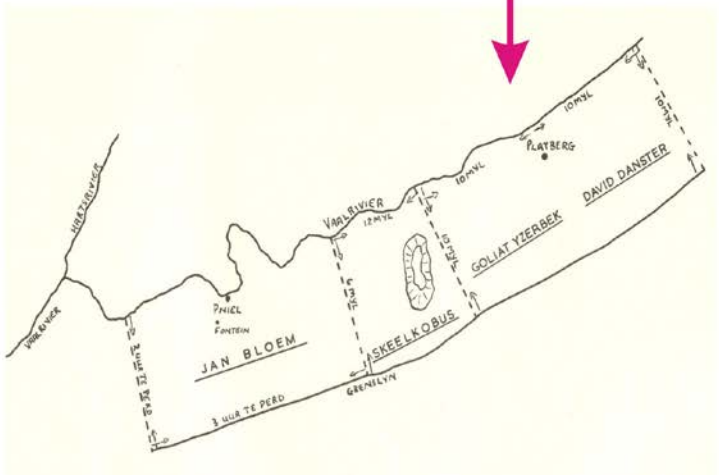


Figure 6. Historical maps based on eyewitness accounts show Bushman hunter-gatherer and Khoi herder occupation in the region prior to European settlement, e.g. Khoisan societies along the Orange River between Upinton and Prieska c. 1779 (left) while early travelers frequently encountered permanently setted Koranna, Griqua and Bushmen groups in the region c. 1850's (right).

Figure 7. The affected area is capped by a thick mantle of culturally sterile red-brown windblown sand.
Scale 1 = 10 cm.

Figure 8. Down-wasted gravel deposits in wind-blown sand matrix.
Scale 1 = 10 cm.

Figure 9. Modern farm structures, cement/brick dam (top) and drinking trough (below).