

Phase 1 Heritage Impact Assessment for proposed  
extension of the Letsopa Township in Ottosdal, NW  
Province.

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June 2021

## **Summary**

A Phase 1 Heritage Impact Assessment was carried out over a 300 ha area for proposed extension of the Letsopa Township in Ottosdal, NW Province. The proposed development will largely impact a veneer of geologically recent top soils that covers much older, palaeontologically insignificant volcanic sediments belonging to the 2 800 Ma old Dominion Group. The superficial deposits are generally not expected to be fossiliferous in the absence of pans, springs or well-developed alluvial deposits. Ottosdal is located near, but outside (west and south of) an area that has previously yielded ample archaeological evidence, primarily characterized by Later Iron Age, stone-walled settlements of early farming communities that are associated with early Tswana speakers who settled in the region between the 14<sup>th</sup> century and the early 19<sup>th</sup> century AD. The terrain has been severely degraded by informal settlement, especially along the northern and eastern boundaries of the study area and is assigned an archaeological site rating of Generally Protected C (Low significance).

## **Contents**

Summary .....	2
Introduction.....	4
Locality data.....	6
Background .....	7
Field Assessment .....	7
Impact Statement and Recommendations .....	8
References .....	8
Tables and Figures .....	10

## **Introduction**

A Phase 1 Heritage Impact Assessment was carried out over a 300 ha area for proposed extension of the Letsopa Township in Ottosdal , NW Province (**Fig. 1**). The region's unique and non-renewable archaeological and palaeontological heritage sites are 'Generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. As many such heritage sites are threatened daily by development, both the environmental and heritage legislation require impact assessment reports that identify all heritage resources including archaeological and palaeontological sites in the area to be developed, and that make recommendations for protection or mitigation of the impact of the sites. Heritage Impact Assessments (HIAs) are most often specialist reports that form part of the wider heritage component of Environmental Impact Assessments (EIAs) required in terms of the National Environmental Management Act or of the Environment Conservation Act by the provincial Department of Environment Affairs; or Environmental Management Plans (EMPs) required by the Department of Minerals and Energy.

### **Legislative framework**

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 be 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 Act 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 of development listed in Section 38 (1) of the NHR Act are:

- 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;
- Exceeding 5000 m<sup>2</sup> in extent;
- Involving three or more existing erven or subdivisions thereof;
- Involving three or more subdivisions thereof which have been consolidated within the past five years;
- Costs of which will exceed a sum set in terms of regulations by the South African Heritage Resources Agency (SAHRA).
- The rezoning of a site exceeding 10 000 m<sup>2</sup>.
- Any other category of development provided for in regulations by the South African Heritage Resources Agency (SAHRA).

If a heritage resource is likely to be impacted by a development listed in Section 38 (1) of the NHR Act, a heritage assessment will be required either as a separate HIA or as the heritage specialist component (AIA or PIA) of an EIA.

The significance or sensitivity of heritage resources within a particular area or region can inform the EIA process on potential impacts, and whether the expertise of a heritage specialist is required or not. A range of contexts may be identified with high or potential cultural significance and which would require some form of heritage specialist involvement (**Table 1**). This may include formally protected heritage sites or unprotected, but potentially significant sites or landscapes. The involvement of the heritage specialist in such a process is usually necessary when a proposed development may affect a heritage resource, whether it is formally protected or unprotected, known or unknown. In many cases, the nature and degree of heritage significance is largely unknown pending further investigation (e.g. capped sites, assemblages or subsurface fossil remains). On the other hand, it is also possible that a site may contain heritage resources (e.g. structures older than 60 years), with little or no conservation value. In most cases it will be necessary to engage the professional opinion of a heritage specialist in determining whether or not further heritage specialist input in an EIA process is required.

### **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.

### **Methodology**

The heritage significance of the affected area is based on existing field data, database information and published literature. A field assessment included the use of a Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera for recording purposes. Aerial photographs (incl. Google Earth) and site records were integrated with observations acquired during the on-site inspection.

### **Field Rating**

A SAHRA – prescribed site significance classification is included for the purpose of this report (**Table 2**).

### **Locality data**

1 : 50 000 scale topographic map: 2625 DD Letsopa

1: 125 000 scale geological map 2626C Ottosdal

The proposed site covers 300 ha of open, low relief terrain situated on the western outskirts of the Letsopa Township in Ottosdal. (**Fig. 2 & 3**).

Site Coordinates (**Fig. 2**):

- A) 26°47'46.45"S 25°58'4.54"E
- B) 26°47'34.76"S 25°59'59.24"E
- C) 26°48'7.63"S 25°59'41.92"E
- D) 26°48'11.06"S 25°59'53.81"E
- E) 26°48'36.77"S 25°59'39.02"E
- F) 26°48'21.77"S 25°57'25.79"E

### **Geology**

Being predominantly volcanic in origin, the underlying geology at the site comprise arenaceous sediments, conglomerates, grits, basic volcanics, tuffs, coarse pyroclastic rocks and quartzite belonging to the 2 800 Ma old Dominion Group (named after the old gold-mining town of Dominion Reefs near Klerksdorp) ( Marsh 2006). The most extensive surface outcrops of Dominion Group occur in the area just to the west of

Klerksdorp and in the area surrounding Ottosdal (1:125 000 scale geological map 2626C Ottosdal, **Fig. 4**).

## **Background**

Strata underlying the study area are not considered palaeontologically significant (**Fig. 5**). The archaeological heritage in the region is largely represented by uncapped Stone Age assemblages, rock engraving sites and the stonewalled Iron Age structures. Stone Age sites in the region are mostly concentrated near the watercourses. MSA and LSA artefacts have been found on the surface of the Schoonspruit gravels north of Klerksdorp (farms Beentjeskraal and Elandsheuwel). ESA and MSA artifacts were also found on the surface along the northern slope of a stream at Doornlaagte, located some 64 km northwest of Klerksdorp on the watershed of the Schoonspruit, Harts and Vaal Rivers.

Several rock engraving sites have been recorded in the Klerksdorp district including the farms Bosworth, Cyferfontein, Doornhoek, Elandsheuwel, Klerksdrift, Oorbietjiesfontein, Strydfontein Yzerspruit and Wolwehuis. There is currently no record of rock engravings at the study area.

The archaeological footprint of the region between Potchefstroom, Mahikeng and Zeerust is primarily characterized by stone-walled settlements of early farming communities that are associated with early Tswana speakers who settled in the region between the 14<sup>th</sup> century and the early 19<sup>th</sup> century AD (**Fig. 6 & 7**). Stone-walled settlements are usually found on flat-topped hills and mountainsides. The region east of Ottosdal is relatively rich in Late Iron Age stonewalled complexes associated with early Sotho-Tswana speakers, which also includes the ancient Rolong capital of Thabeng (White 1977, **Fig. 8 -10**). The architecture of these Iron Age sites has many of the traits of the Type Z bilobial hut settlement pattern found in neighboring parts of the Free State Province, and is attributed to ancestral Tswana people, who settled in the region from the 17<sup>th</sup> century to the early 19<sup>th</sup> century (Maggs 1976).

## **Field Assessment**

The terrain has been severely degraded by informal settlement, especially along the northern and eastern boundaries of the study area. Observations yielded no signs of *in situ* Stone Age archaeological material, capped or distributed as surface scatters on

the landscape. There are no indications of rock engravings, prehistoric settlement structures or historical buildings older than 60 years within the demarcated area. An existing cemetery at Letsopa Township will not be impacted by the proposed development (see **Fig. 2**).

## **Impact Statement and Recommendations**

The proposed development will largely impact a veneer of geologically recent top soils that covers much older, palaeontologically insignificant sediments (**Fig. 5 & 11**). The superficial deposits are generally not expected to be fossiliferous in the absence of pans, springs or well-developed alluvial deposits. Ottosdal is located near, but outside (west and south of) an area that has previously yielded ample archaeological evidence of occupation by Late Iron Age agricultural societies. The proposed development is assigned an archaeological site rating of Generally Protected C (Low significance, **Table 2**) and can be accessed for further development.

## **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 and have no conflicting interests in the undertaking of the activity.

## Tables and Figures

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

Heritage Context	Example of Heritage Resource	Impact
<b>Palaeontology</b>	Precambrian shallow marine and lacustrine stromatolites, organic-walled microfossils, Ghaap Plateau (Transvaal Supergroup) Palaeozoic and Mesozoic fossil remains, e.g. Karoo Supergroup rocks Neogene regolith	Road cuttings, agricultural developments, Quarry excavation Bridge, road and pipeline construction (Quaternary alluvial deposits)
<b>Archaeology</b> 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 <i>inter alia</i> 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.
<b>History</b>	Historical townscapes, e.g. Kimberley Historical structures, i.e. older than 60 years Historical burial sites Places associated with social identity/displacement, e.g. Witsieshoek Cave, Oppermansgronde Historical mission settlements, e.g. Bethulie, Beersheba, Moffat Mission	Demolition or alteration work. New development.
<b>Natural Landscapes</b>	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.
<b>Relic Landscape Context</b>	Battle and military sites, e.g. Magersfontein 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.

<b>Field Rating</b>	<b>Grade</b>	<b>Significance</b>	<b>Mitigation</b>
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

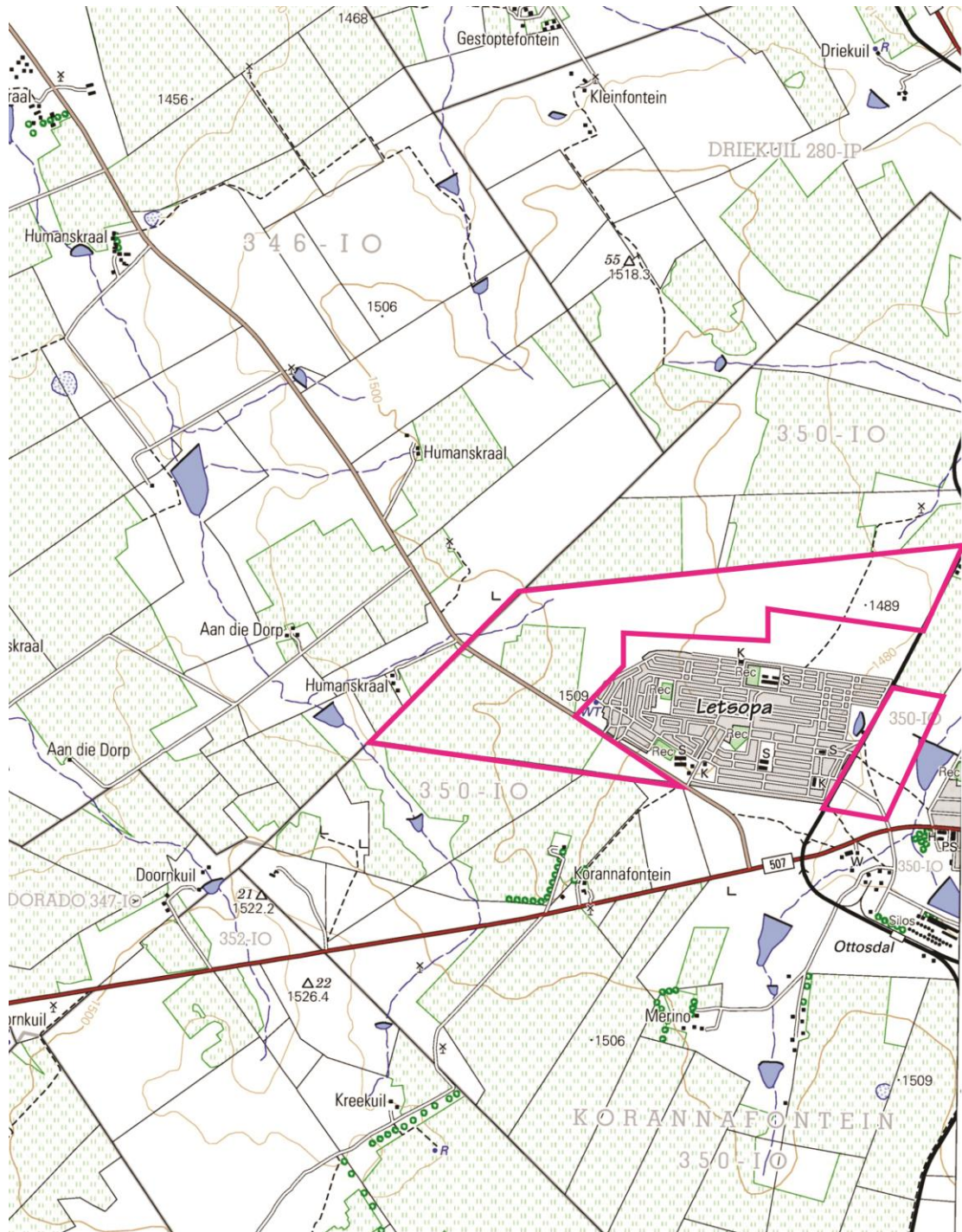


Figure 1. Map of study area (portion of 1:50 000 scale topographical map 2625DD Letsopa).





Figure 3. General view of the study area, looking north (above) and south (below).

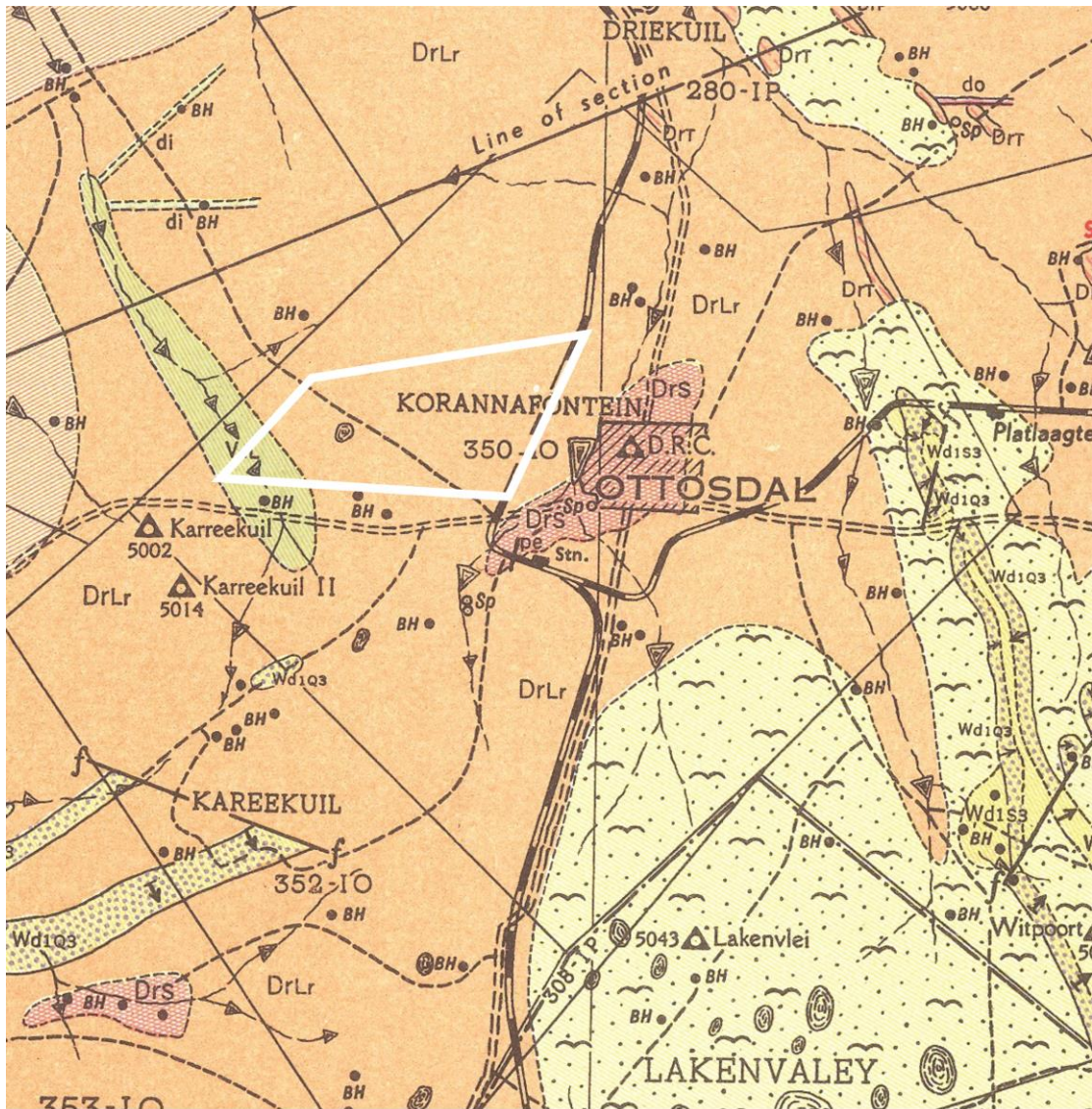


Figure 4. Geological map of the area. The site (white polygon) is primarily underlain by volcanic and minor clastic sedimentary rocks of the Archaean, Dominion Group (*DrLr*, *DrS*) and younger Ventersdorp Supergroup andesites (*Vdl*) (portion of 1:125 000 scale geological map 2626 C Ottosdal).

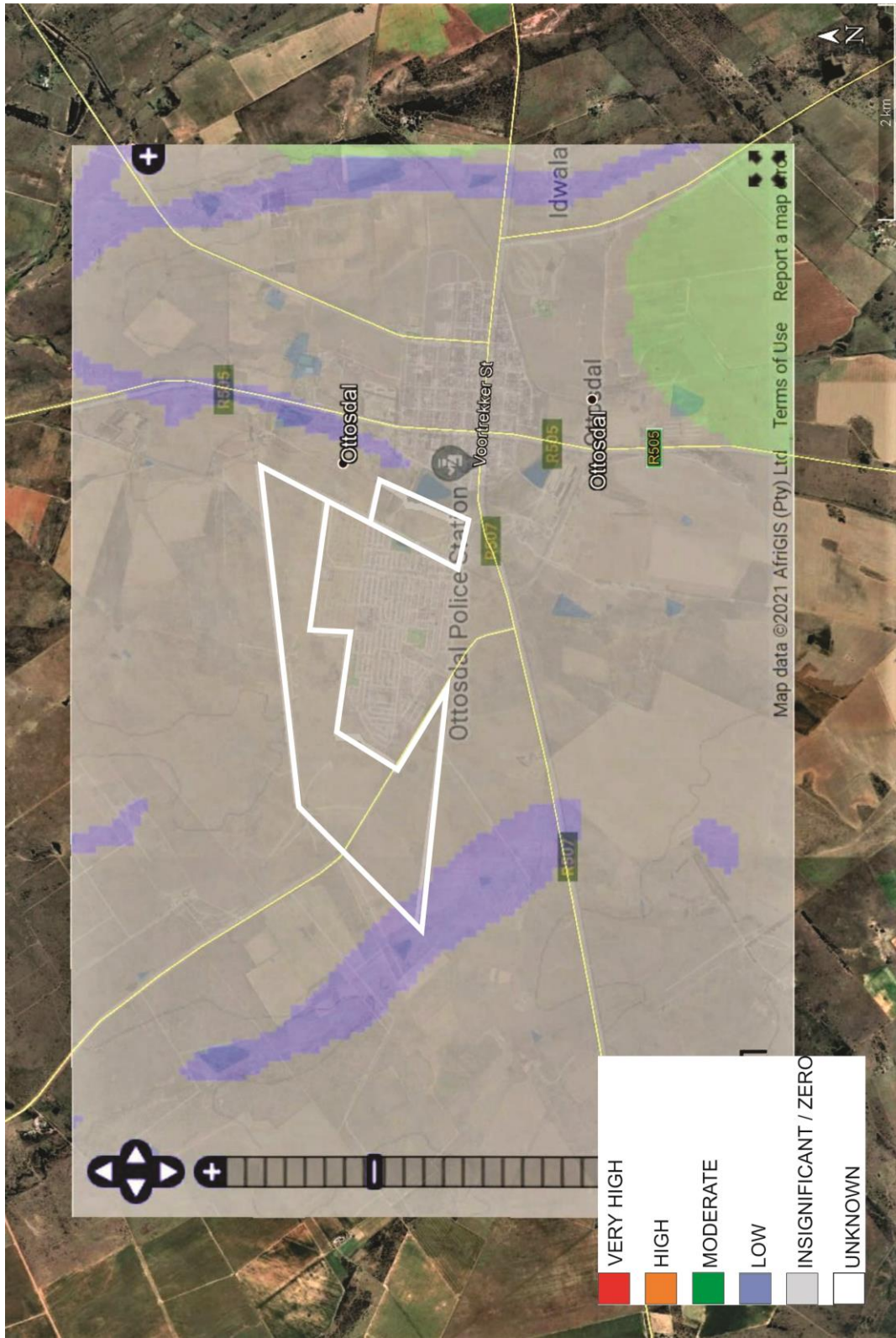


Figure 5. SAHRIS palaeosensitivity map of the study area.





Figure 6. Distribution of Later Iron Age sites in the region (green areas) (after Bergh 1998).



Figure 7. Distribution of black communities at the beginning of the 19th century (after Bergh 1998).

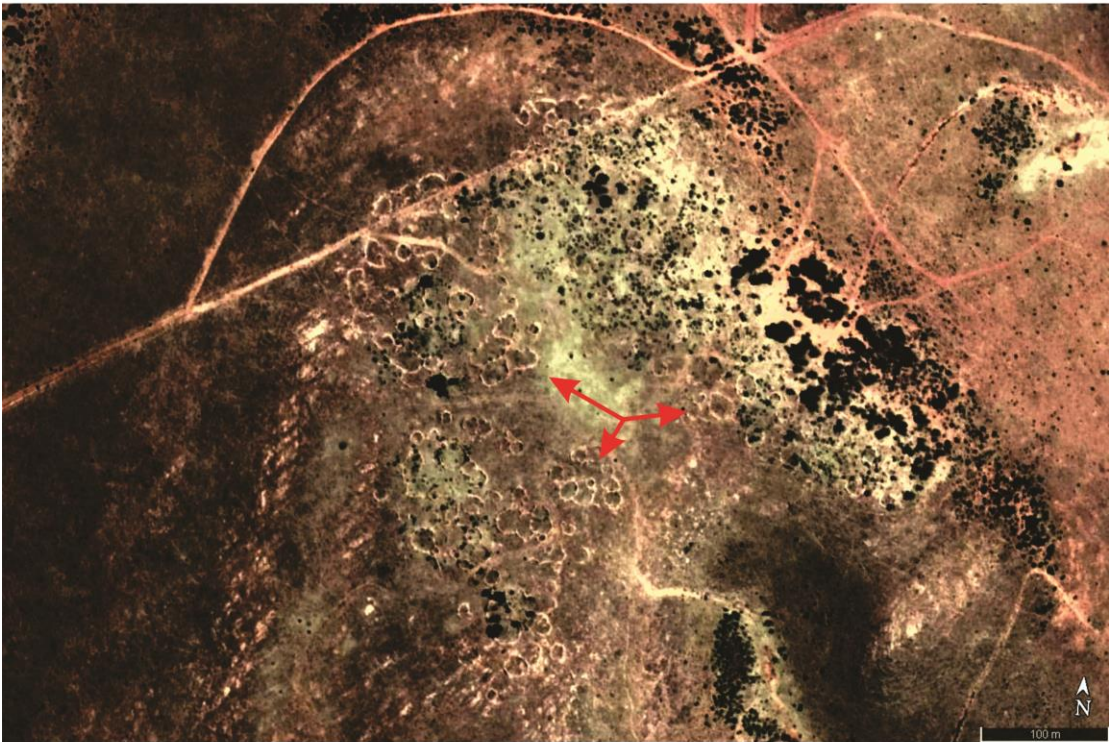
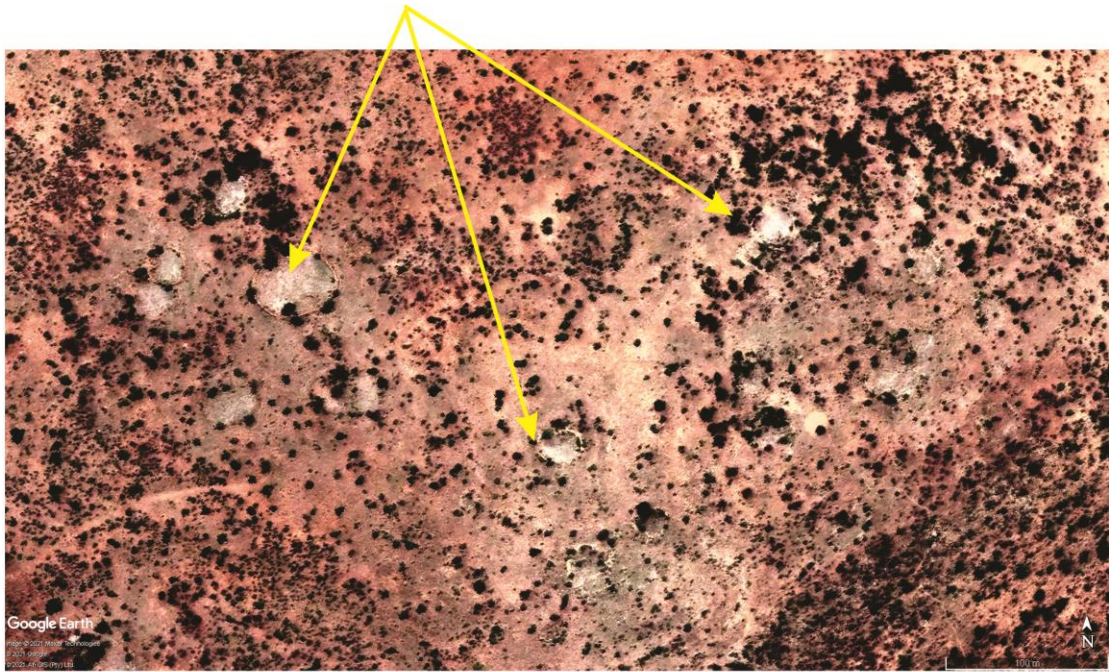


Figure 8. Aerial views of stone-walled complexes east of Klerksdorp at Hartbeesfontein (above) and Grootkop (below)



Figure 9. Remains of stone-walled kraals and enclosures at Grootkop.

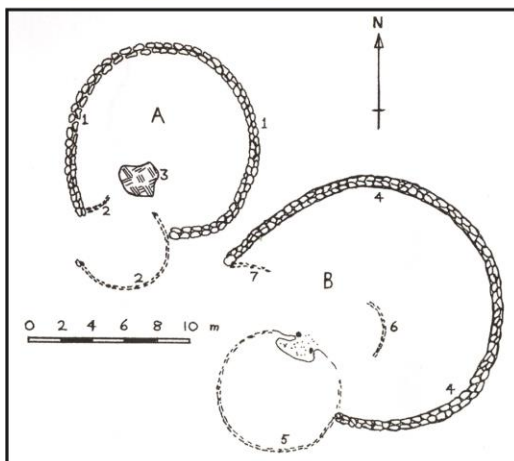
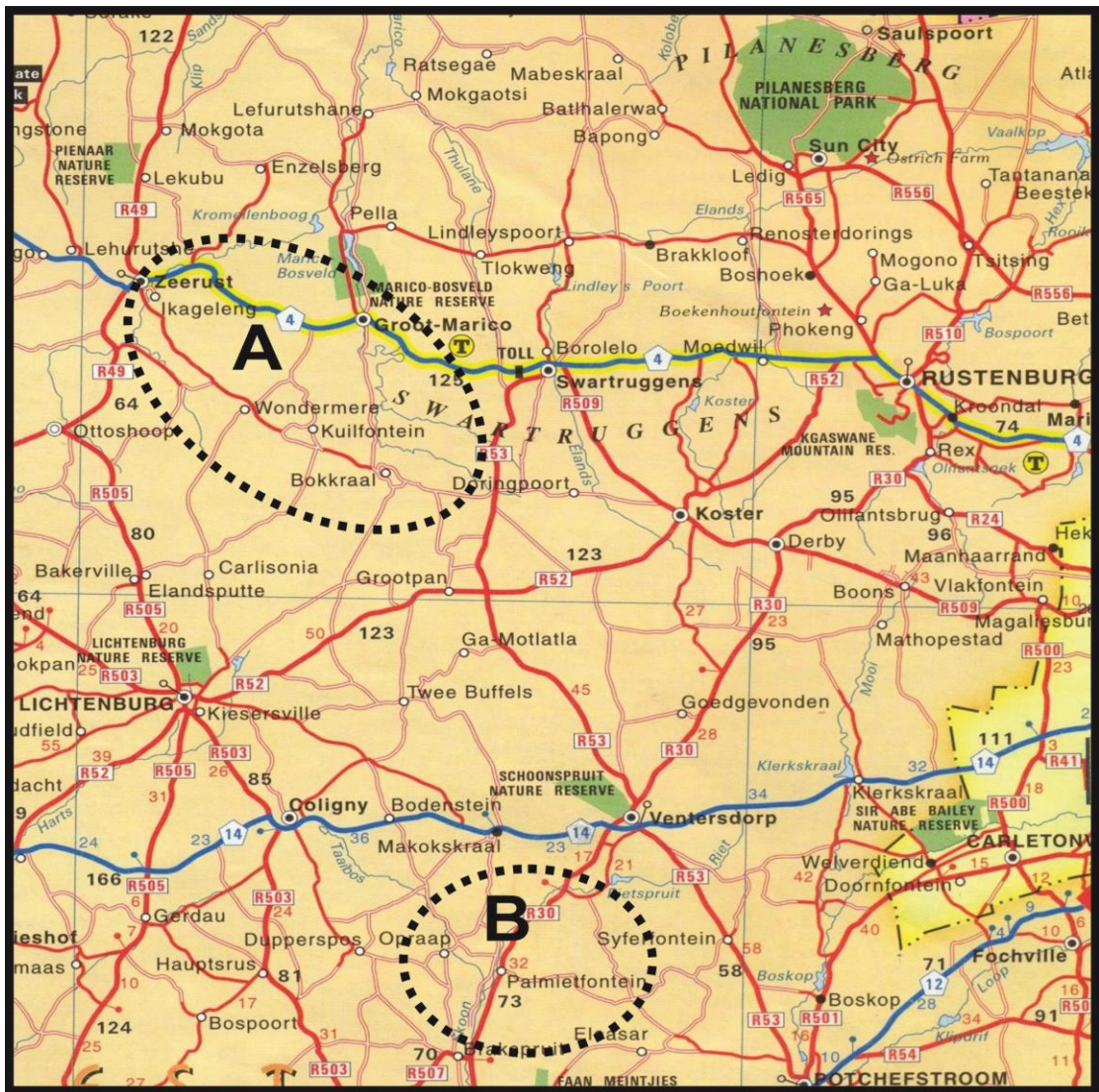


Figure 10. The area between Klerksdorp in the south and Zeerust in the north is comparatively rich in Iron Age sites, especially in the Marico area northwest of Lichtenburg (A) as well as in the Palmietfontein-Lemoenfontein area, which also includes the ancient Rolong capital of Thabeng (B), north of Klerksdorp. General plan of an Iron Age stone-walled settlement on the farm Palmietfontein situated about 30 km north of Klerksdorp (left).



Figure 11. General view of a relatively undisturbed southern section of the site.