

Phase 1 Heritage Impact Assessment for a proposed new Cattle Feedlot on the farm Lilyfontein 156 near Parys, Free State Province.

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Introduction

The application relates to a 1.5 ha area designated for the development of a new cattle feedlot near Parys, Free State Province (**Fig. 1**). The site lies about 2.8 km due east of the N1 national road, and is situated on low topography terrain on the farm Lilyfontein 156 (**Fig. 2**).

Map Ref.: 1:50 000 topographical map 2627 DC Weiveld

1:250 000 geological map 2626 Wes Rand

Site Coordinates (Fig. 2):

- A) 26°53'57.90"S 27°37'54.49"E
- B) 26°53'56.95"S 27°37'56.10"E
- C) 26°53'59.78"S 27°37'58.20"E
- D) 26°54'2.17"S 27°37'57.24"E
- E) 26°54'5.45"S 27°37'55.77"E
- F) 26°54'2.38"S 27°37'53.60"E
- G) 26°54'0.71"S 27°37'56.32"E

The heritage significance of the affected area was evaluated on the basis of existing field data, database information and published literature. This was followed by a field assessment by means of a pedestrian survey. A Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera were used for recording purposes. Maps and aerial photographs (incl. Google Earth) were consulted and integrated with data acquired during the on-site inspection. Site significance classification prescribed by SAHRA (2005) were used to indicate overall significance and mitigation procedures where relevant (**Table 1**).

Background

The site is situated on the eastern edge of the 80-90-km-wide Vredefort Dome, a World Heritage Site, which represents the central portion of a 2.02 Ga year old, deeply eroded and complex impact structure that formed in Archaean and Palaeoproterozoic rocks of the Kaapvaal craton (Reczko et al. 1995; Gibson and Reimold 2001) (**Fig. 4 & 5**). Plentiful signs of Stone Age human occupation are visible on the landscape in and around the Vredefort

Dome World Heritage Site. Early to Middle Stone Age artifacts are derived from the Vaal gravels between Vereeniging and and include an abundance of Acheulian (Early Stone Age) hand axes, cleavers and core-axes, primarily made from quartzite (Sohnge *et al.* 1937; Cooke 1949). Late Iron Age stonewalled settlements built by Sotho-Tswana speakers also form part of the rich cultural heritage of the Vredefort Dome from 1400 to 1800 AD (eg. Askoppies and Buffelskloof) (Maggs 1976; Pelsner 2004; Nkhasi-Lesaoana 2008) (**Fig. 6**). European settlement occurred from 1836 (Voortrekkers), while establishment of the Boer republics and the discovery of diamonds and gold further contributed to the distinctive historical character of the region. There are plentiful rock art sites with engravings mostly recorded on late Vaalian diabase and Mesozoic dolerites in the Lower Vaal River Basin, including the area around Parys (van Riet Lowe 1941). There is currently no record of engraving sites in the immediate vicinity of the study area.

Field Assessment

2.9 Ga year old, Witwatersrand Supergroup rocks, consisting of marine orthoquartzites, siltstones and ferruginous shales that are preserved in the lower Hospital Hill Subgroup (*Rh*) of the West Rand Group (McCarthy 2006) underlie the study area (**Fig. 5 & 7**). The site itself is mantled by a dark-brown gravelly residual soil, degraded by previous (modern) farming activities, where no *in situ* Stone Age archaeological material, capped or distributed as surface scatters on the landscape, were observed (**Fig. 8**). There are also no indications of rock art (engravings), prehistoric structures, graves or historically significant buildings older than 60 years within the boundaries of the proposed footprint area. Two small cemeteries, a historical building and complex of traditionally constructed huts were recorded during the survey, but will not be impacted by the proposed development (**Fig. 9 & 10**).

Feature Coordinates:

Cemetery 1: 26°54'10.60"S 27°37'50.69"E

Cemetery 2: 26°54'3.09"S 27°37'47.42"E

Historical building: 26°54'6.91"S 27°37'52.39"E

Traditionally constructed huts: 26°54'9.66"S 27°37'52.46"E

Impact Statement & Recommendation

Impact on palaeontological, archaeological or historically significant remains within development footprint is considered very low to non-existent (**Fig. 11**). It is recommended that the planned development is exempt from further palaeontological investigation. Also, the proposed development footprint is assigned a rating of Generally Protected C (GP.C) (**Table 1**). As far as the palaeontological and archaeological heritage is concerned, the proposed development may proceed provided that

- all activities are restricted to within the boundaries of the development footprint
- and that, as a precautionary measure, a 25 m no-go buffer zone for vehicles are placed around the historical building and two graveyards for the duration of the

construction phase.

References

- Cooke, H.B.S. 1949. Fossil mammals of the Vaal River Gravels. *Geological Survey. Memoir 35 (3)*, pp 1 – 109.
- Gibson RL, Reimold WU 2001. The Vredefort Impact Structure, South Africa. Council for Geoscience, Pretoria, Memoir 92: 111 pp.
- Maggs T. M. O’C 1976. *Iron Age Communities of the Southern Highveld*. Occasional Publications of the Natal Museum No. 2. Natal Museum, Pietermaritzburg.
- McCarthy T.S. 2006. The Witwatersrand Supergroup. In: M.R. Johnson et. al. (eds). *The Geology of South Africa*. Geological Society of South Africa.
- Pelser A. 2004. Askoppies: A Late Iron Age Tswana Site on the edge of the Vredefort Dome. *The Digging Stick*, 21(3): 16- 18.
- Maggs, T M. 1976. *Iron Age Communities of the Southern Highveld*. Pietermaritzburg Natal Museum.
- Nkhasi-Lesaoana, M. 2008. Aerial photographic survey of the Vredefort Dome. *Position IT (Nov/Dec)* 18 – 21.
- Reczko et al. 1995. A re-evaluation of the early Proterozoic Pretoria Group (Kapaal Craton) and a hypothesis on basin development. *Journal of African Earth Sciences* 21: 505-519.
- Sohnge, P.G. et al. 1937. *The geology and archaeology of the Vaal River Basin*. Memoir no. 35. Department of Mines, Geological Survey.
- Van Riet Lowe, C. 1941. *Prehistoric art in South Africa*. Archaeological Series No. 5. Dept. of the Interior. Pretoria.

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 and have no interest in secondary or downstream developments as a result of the authorization of this project.

Tables & Figures

Table 1. Archaeological 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

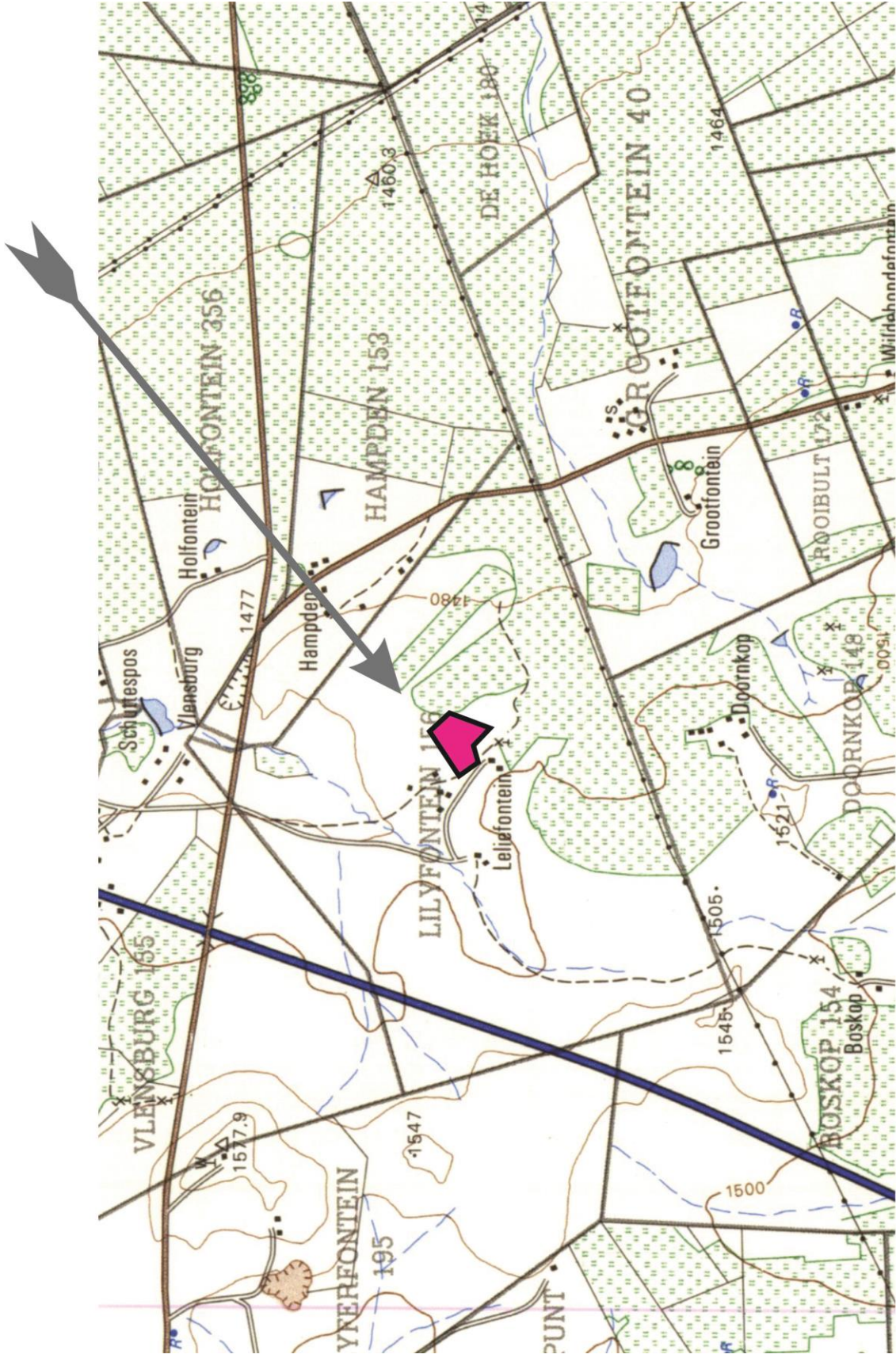


Figure 1. Map of the proposed new feedlot area on farm Lilyfontein 156 (portion of 1:50 000 scale topographic 2627 DC Weiveld).

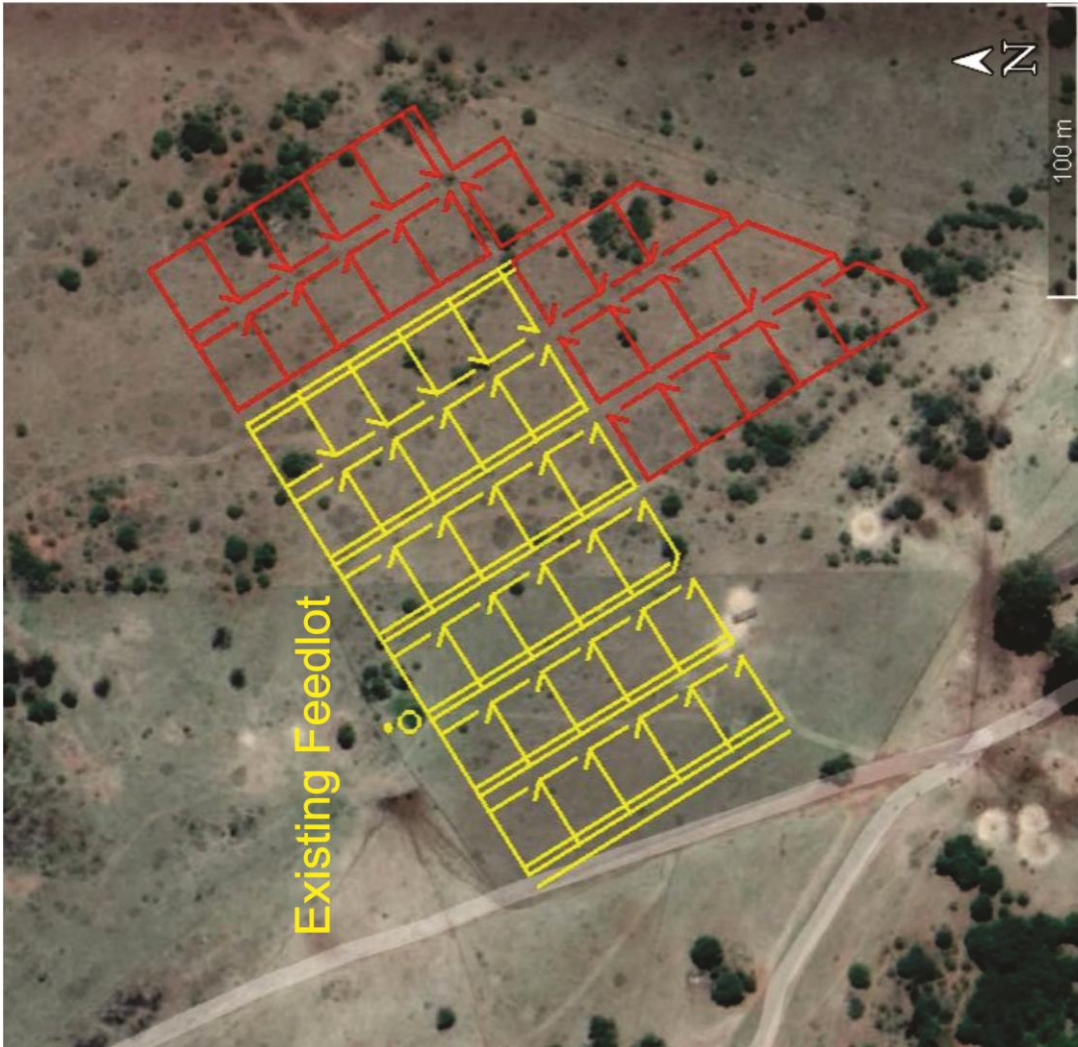


Figure 2. Aerial view of the proposed development footprint (red area). area.



Figure 3. General view of the veld.



Figure 4. Aerial view of the central portion of Vredefort Dome impact structure. White arrow = position of study area

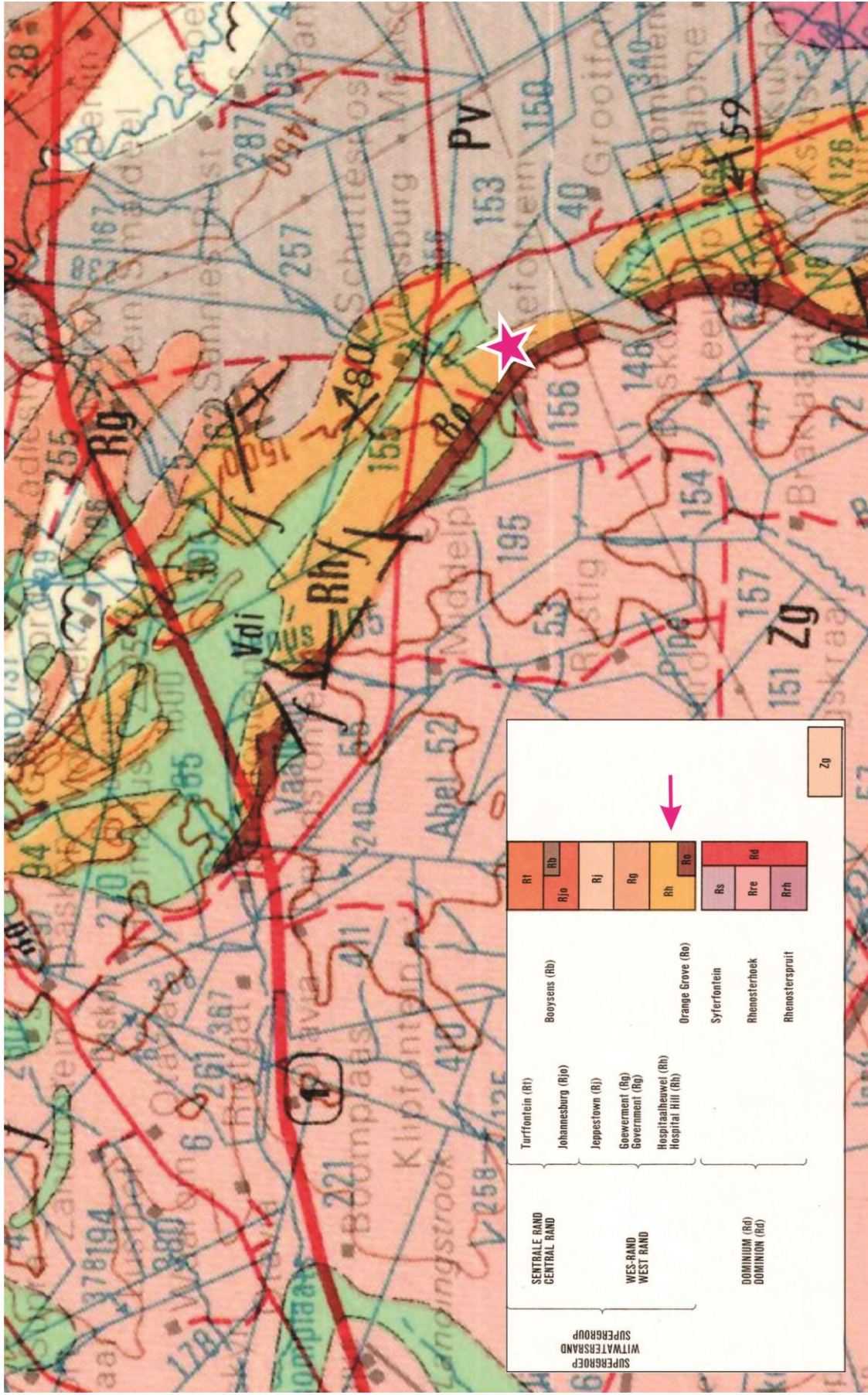


Figure 5. The site (star) marked on portion of 1:250 000 scale geological map 2626 Wes Rand is underlain by undifferentiated Archaean and Palaeoproterozoic rocks (granites and gneiss, Zg).

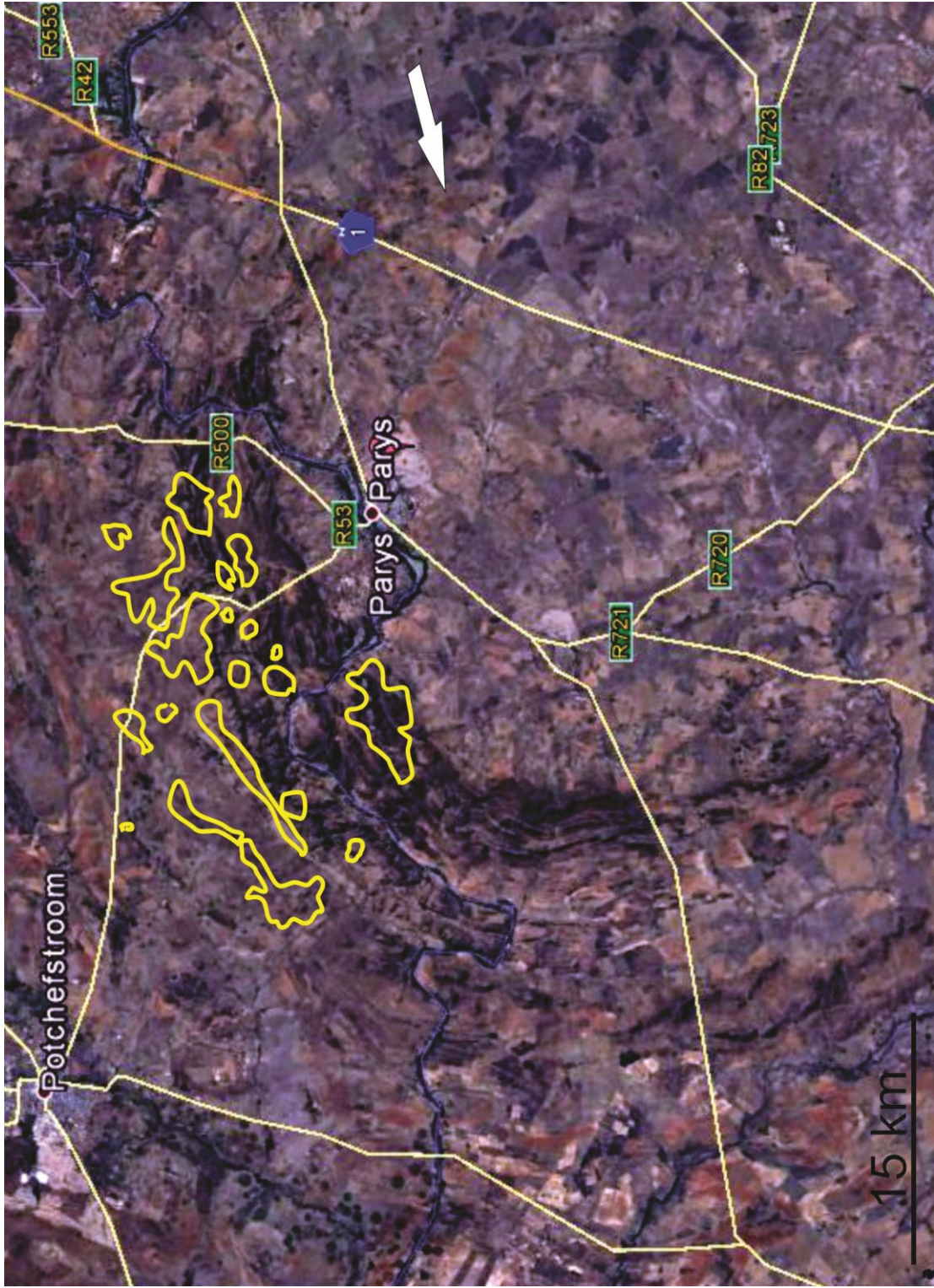


Figure 6. Distribution of Late Iron Age stone-walled settlements (yellow polygons) built by Sotho-Tswana speakers. White arrow = position of study area



Figure 7. Outcrop of clastic sediments showing bedded layers of quartzitic sandstone (below).



Figure 8. General view of the study area, looking towards the existing cattle feedlot.

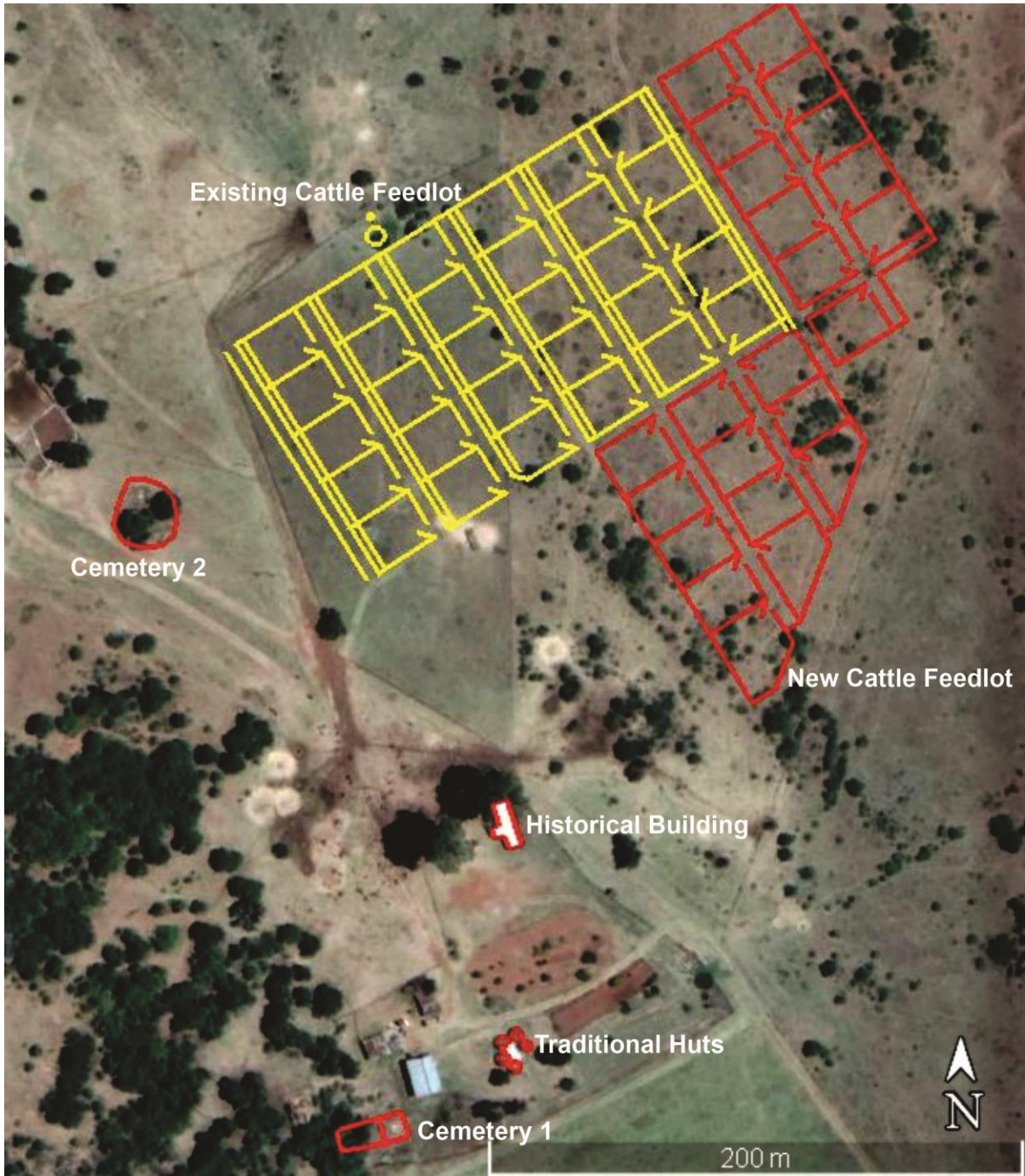


Figure 9. Aerial view and layout of man-made features recorded during survey.



Figure 10. From left to right, Cemetery 1 and 2 (above) a historical building and traditionally constructed huts (below).

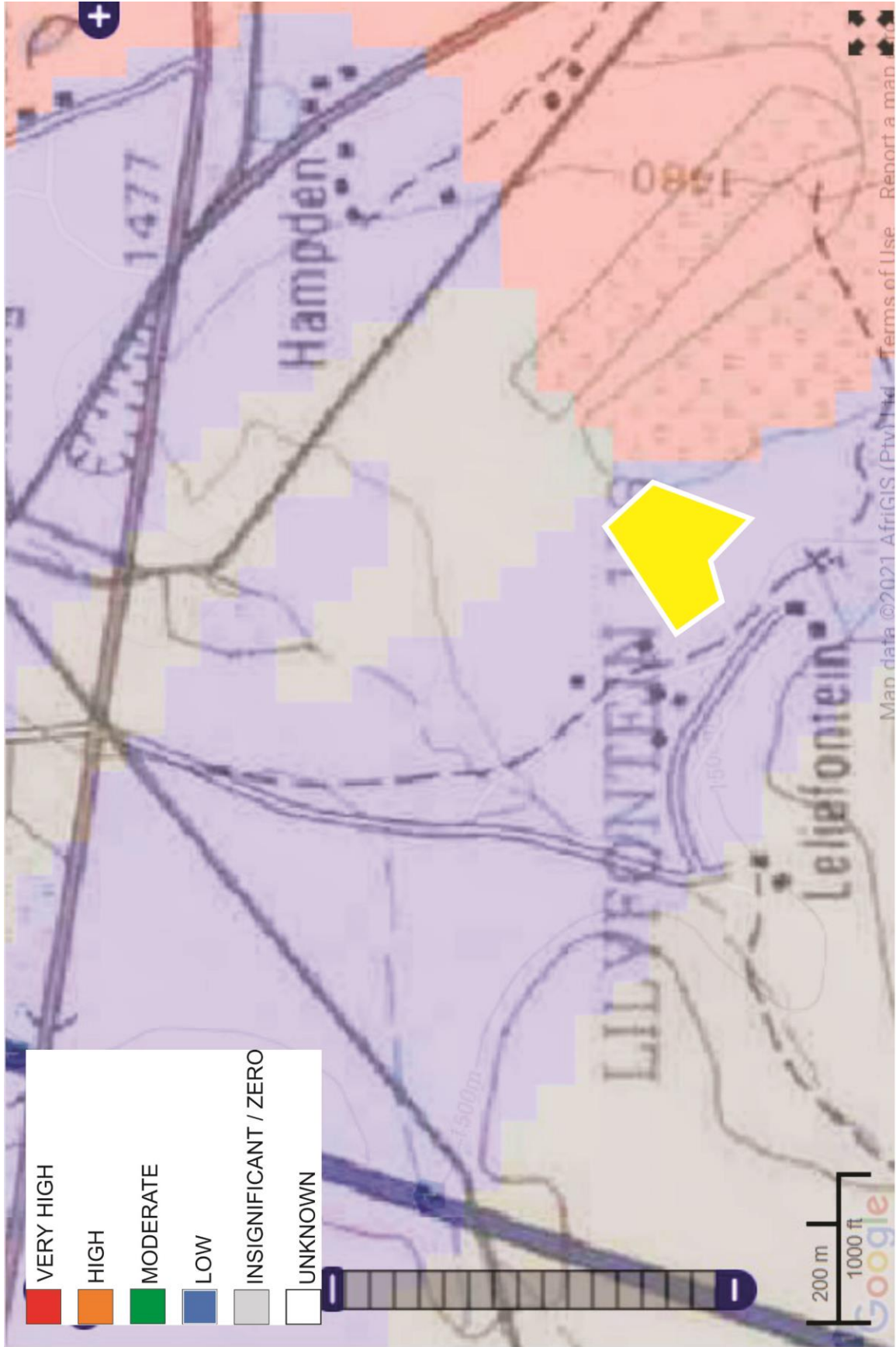


Figure 11. SAHRIS palaeosensitivity map of the area (Study area marked by yellow polygon).