

**Phase 1 Heritage Impact Assessment of a new  
WWTW facility and associated center pivot in Stella,  
Northwest Province.**

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## **Summary**

A Phase 1 Heritage Impact Assessment was carried out for the installation of a new WWTW and associated centre pivot in Stella, Northwest Province. The terrain is capped by a thick mantle of culturally sterile, red-brown Quaternary wind-blown sand and underlain by palaeontological insignificant basalts. A foot survey of the study area show no aboveground evidence of historically significant structures, Iron Age sites, graves or *in situ* Stone Age archaeological material, capped or distributed as surface scatters on the landscape. Signs of land use and prior disturbance are evident. The proposed development footprints are considered to be of low archaeological significance and is assigned a site rating of Generally Protected C.

## Introduction

A Phase 1 Heritage Impact Assessment was carried out for the installation of a new WWTW and associated centre pivot in Stella, Northwest Province (**Fig. 1**). The assessment is required as a prerequisite for new development in terms of the National Environmental Management Act and is also called for in terms of the National Heritage Resources Act (NHRA) 25 of 1999. The region's unique and non-renewable archaeological 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 in the area to be developed, and that make recommendations for protection or mitigation of the impact of such sites.

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 m<sup>2</sup> 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 m<sup>2</sup>; or
- Any other category of development provided for in regulations by the South African Heritage Resources Agency (SAHRA).

### **Terms of Reference**

The task involved the following:

- 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 was evaluated based on 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. Relevant publications, aerial photographs (incl. Google Earth) and site records were consulted and integrated with data acquired during the on-site inspection.

## **Field Rating**

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

## **Locality data**

1 : 50 000 scale topographic map: 2624 DB\_Stella

1 : 250 000 geological map 2624 Vryburg

The proposed development footprint covers about 18 ha of flat-lying grassland terrain on the Farm Zoutpansfontein 546 IN, situated on the western outskirts of Stella (**Fig 2**). The site is currently informally used for cattle grazing (**Fig. 4**).

Site coordinates (**Fig. 1**)

A) 26°33'23.98"S 24°50'19.78"E

B) 26°33'18.50"S 24°50'29.82"E

C) 26°33'30.85"S 24°50'42.10"E

D) 26°33'38.41"S 24°50'29.74"E

## **Background**

The geology of the study area is shown on the 1: 250 000 geology map 2624 Vryburg (Council for Geoscience, Pretoria) and has been described by Keyser & Du Plessis 1993). According to the map sheet the site is underlain by Venterdorp Supergroup volcanic rocks (Allanridge Formation), that are capped in places by more recent Kalahari Group deposits (**Fig. 5**).

The Kathu-Kuruman-Taung region situated to the south and southwest of Stella is

generally rich in Early, Middle and Later Stone Age open sites / surface scatters (Helgren 1978; Humphreys 1978; Kuman 2001; Beaumont & Vogel 2006). Intact palaeontological and Stone Age archaeological sites are frequent and widespread in the region and include important localities like Taung, Kathu Pan, and Wonderwerk Cave (Beaumont & Morris 1990) (**Fig. 6**). Archaeological investigations at Wonderwerk Cave show evidence of *in situ*, ESA, Fauresmith and Middle Stone Age, as well as Later Stone Age deposits, including rock art (Thackeray *et al.* 1981; Chazan *et al.* 2012). It is unique since few sites have yielded such a long sequence of *in situ* ESA horizons, which also cover the ESA/MSA transition, while none of the other ESA sites in Southern Africa have yielded such abundant and well preserved *in situ* micro and macro-faunal and botanical remains. Specularite mining sites at Doornfontein and Beeshok near Postmasburg, provide evidence of LSA mining practices and the introduction in the region by 1200 BP, of domesticated ovicaprids and possibly cattle as well as pottery. 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 (Fock & Fock 1984).

The archaeological footprint around Dithakong is primarily represented by stonewall remnants of the early 19<sup>th</sup> century BaTlaping capital Dithakong, located near the modern village of Dithakong. At the time of the 1801-1803 Borchers and Somerville expedition, Dithakong was an important BaTlhaping (BaTswana) 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 (Maingard, 1933; Beaumont 1983; Morris 1990). 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 15<sup>th</sup> 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<sup>2</sup> comprising hundreds of circles of varying size (**Fig. 7**). Iron Age sites found northwest of Kuruman, and west of Stella include Gamohaam, Maropeng, Batlharos and Mahakane as well as Kinderdam, situated halfway between Vryburg and Madibogo (**Fig. 8**). Vryburg was established as the capital of the independent Boer Republic of Stellaland in 1882, hence the name of the town (**Fig. 9**). The Stellaland area, which includes the town of Stella, was incorporated as a British protectorate into British Bechuanaland in 1884, which in turn became part of the Cape Colony in 1895.

## Field Assessment

A thick mantle of red-brown Quaternary wind-blown sand caps the terrain. A foot survey of the study area show no aboveground evidence of historically significant structures, Iron Age sites, graves or *in situ* Stone Age archaeological material, capped or distributed as surface scatters on the landscape. Signs of land use and prior disturbance are evident (**Fig 10 & 11**).

## Impact Statement and Recommendations

The proposed development footprints are located on palaeontological insignificant basalts, capped by unconsolidated, Quaternary wind-blown sand. The study area is considered to be of low archaeological significance 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.



07 / 09 / 2020



## Tables and Figures

**Table 1.** Field rating categories for heritage sites 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

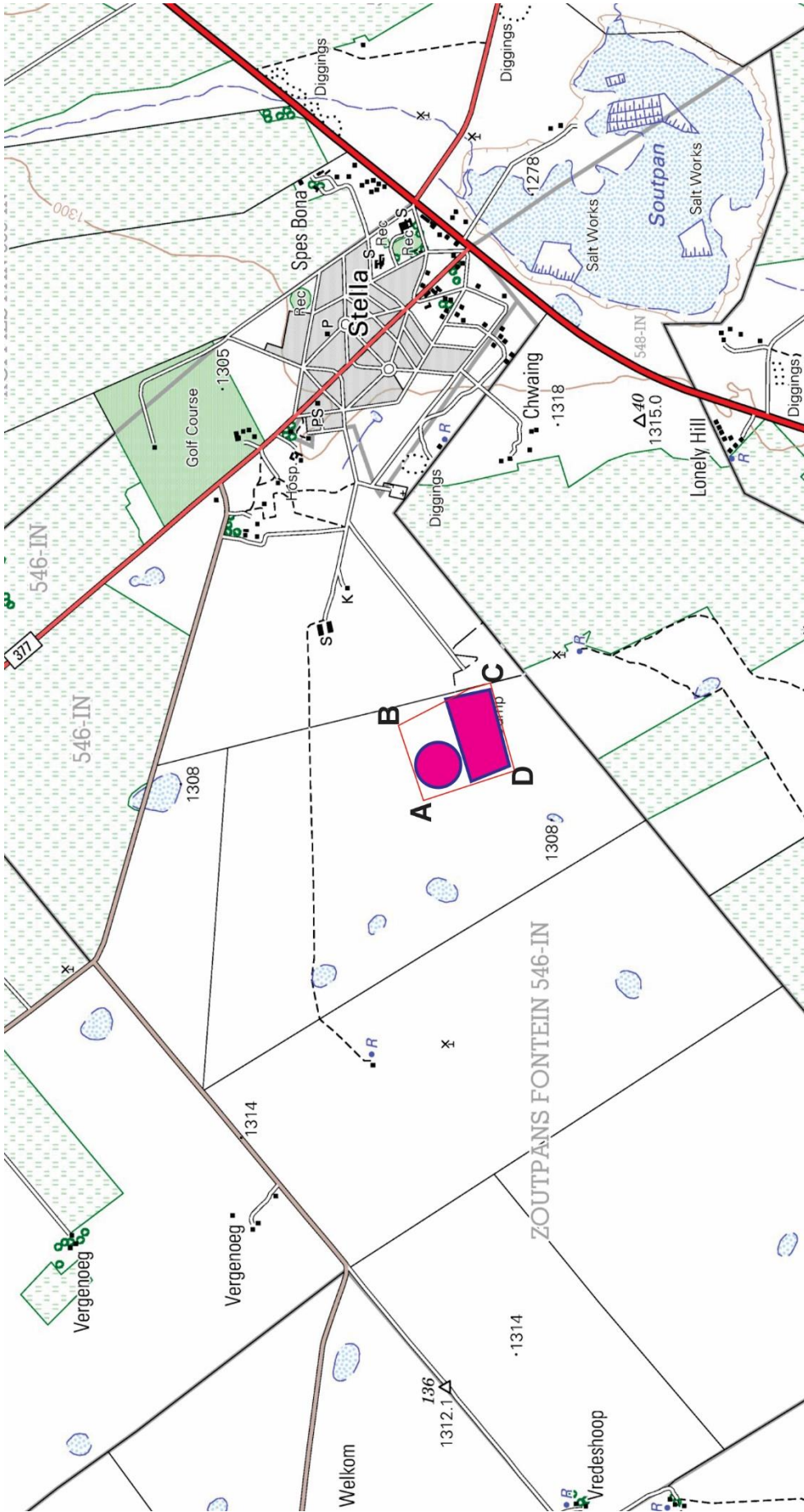


Figure 1. Map of the proposed development (portion of 1:50 000 scale topographic map 2624DB Stella).



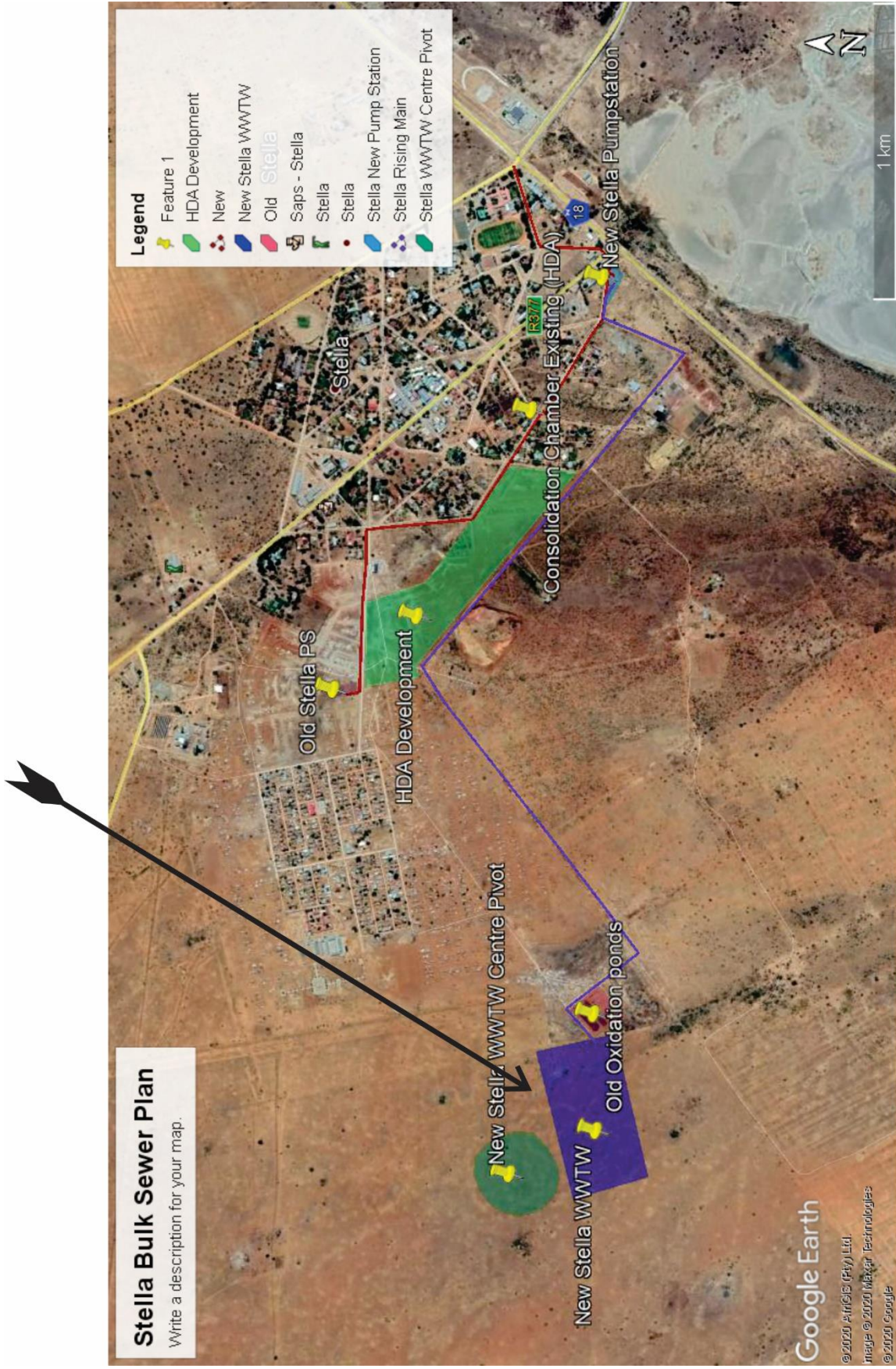


Figure 2. Layout of the proposed new centre pivot and WWTW footprints.





Figure 3. Aerial view of the study area covering the proposed center pivot and WWTW footprints.

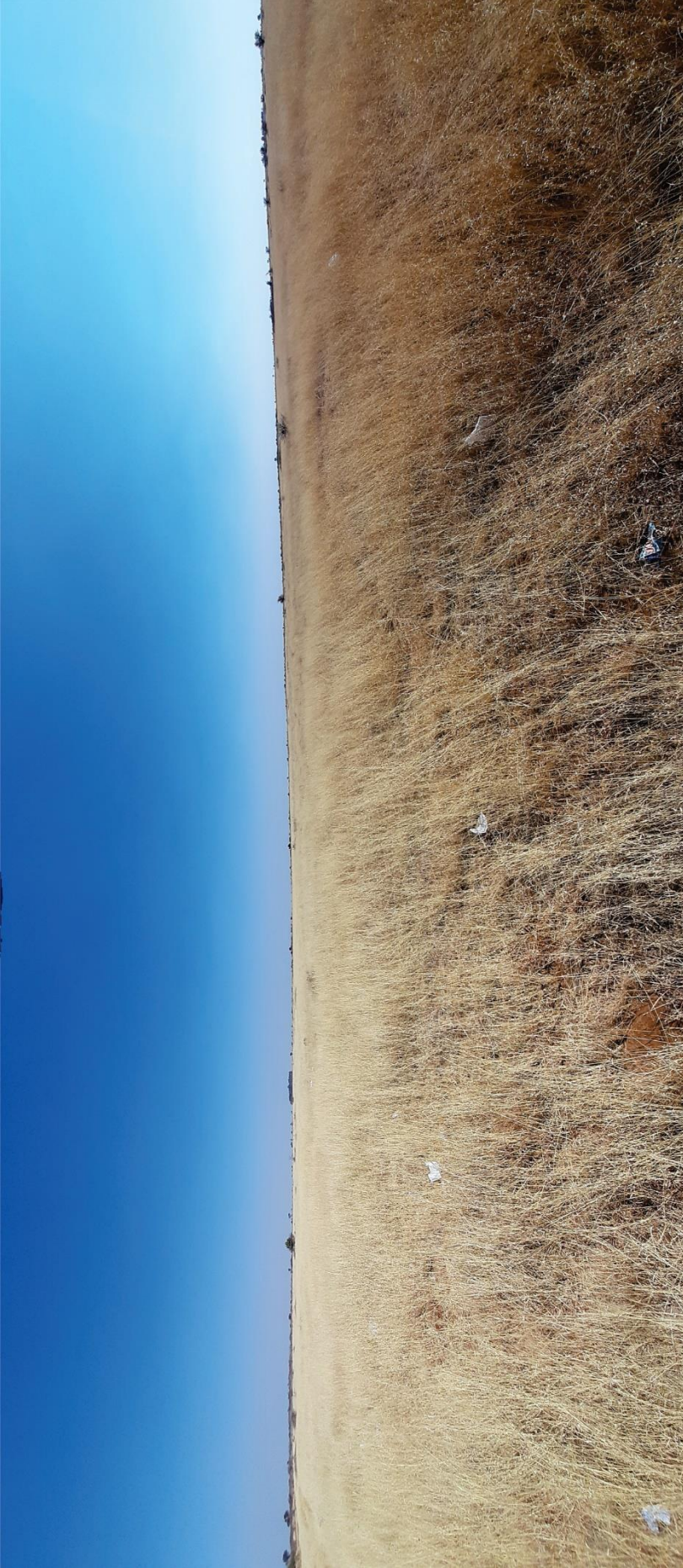


Figure 4. General view of the site, near southern boundary, looking west-northwest.



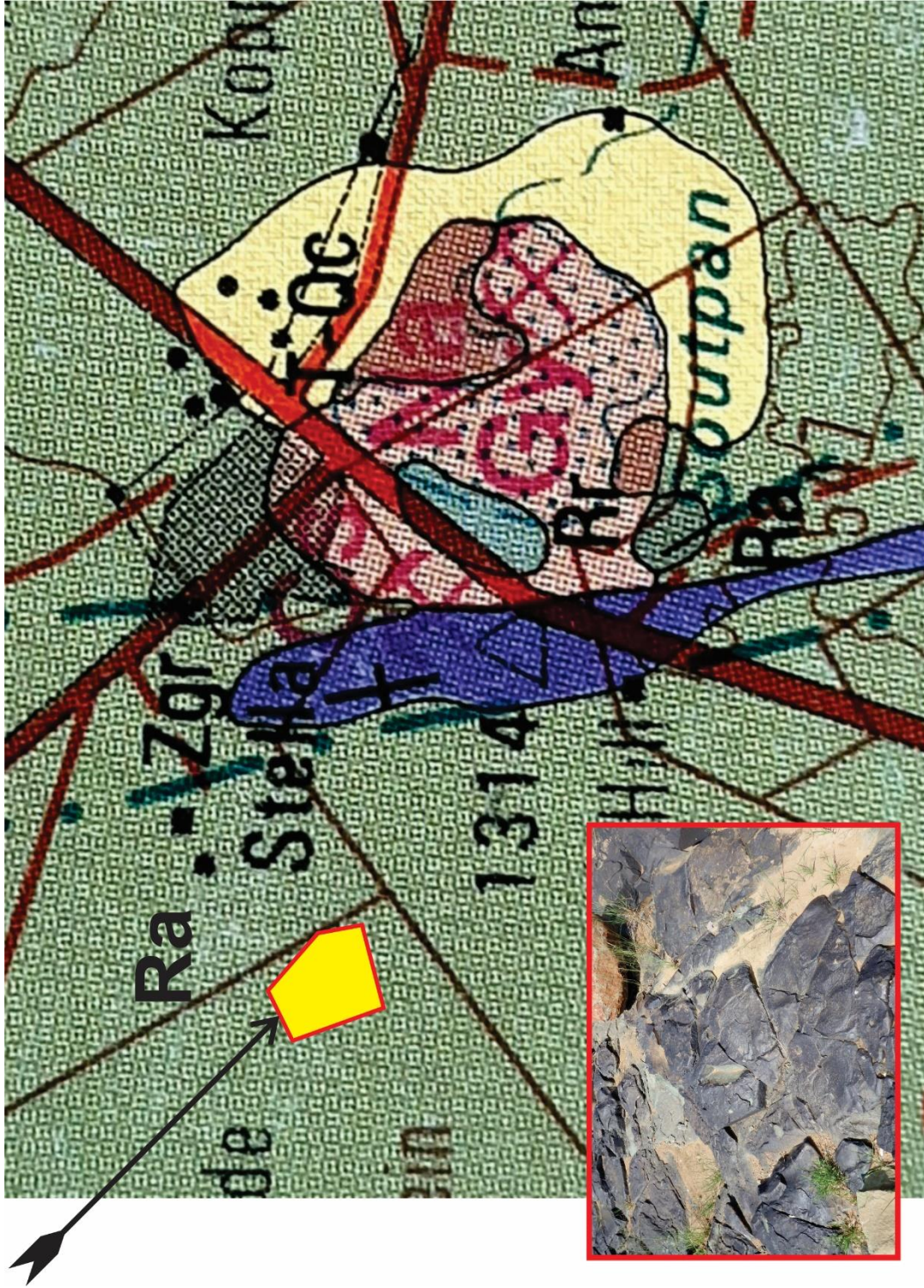


Figure 5. According to the 1:250 000 geological map 2624 Vryburg, the proposed footprint is underlain by Venterdorp Supergroup basalts of the Allanridge Formation (*Ra*, insert).

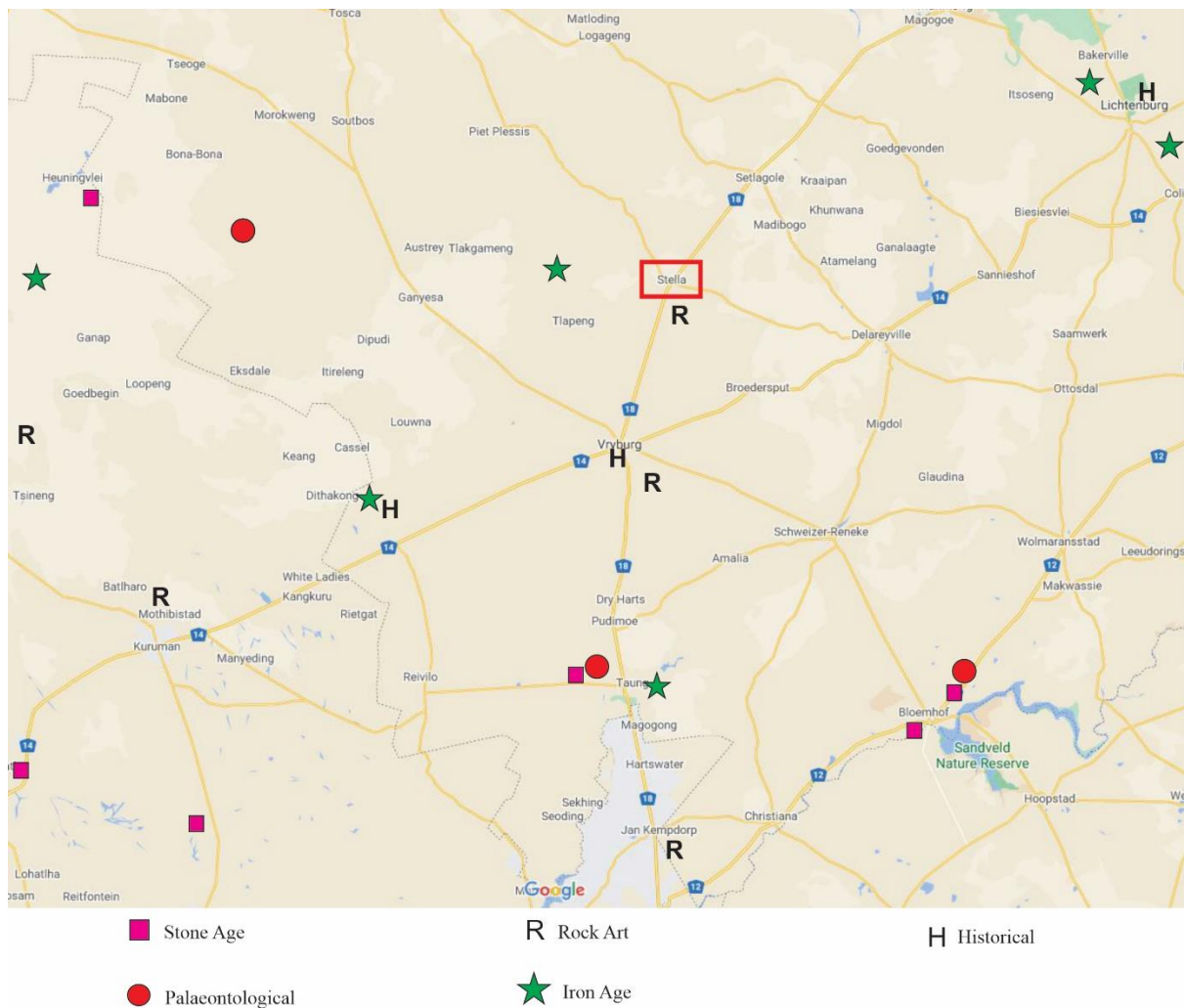


Figure 6. Map showing known historical, archaeological and palaeontological sites in the region.





Figure 7. Extensive stone wall enclosures are found near Dithakong. Archaeological investigations conducted during the 1980's have revealed that the ruins were built during the 15th century A.D.



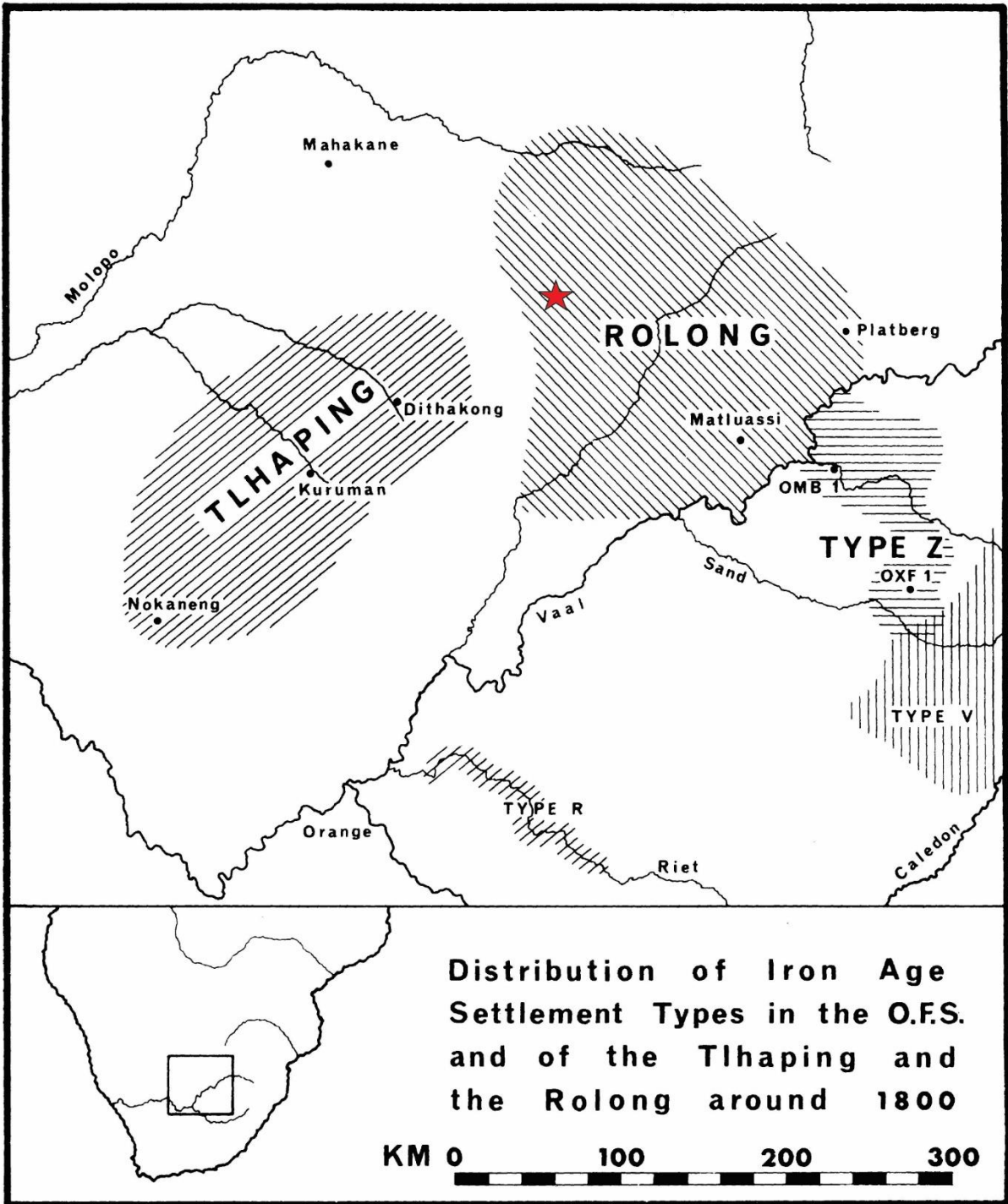


Figure 8. Distribution of the Tlhaping and Rolong in the region at the beginning of the 19th century according to Maggs (1972). Position of Stella indicated by red star.

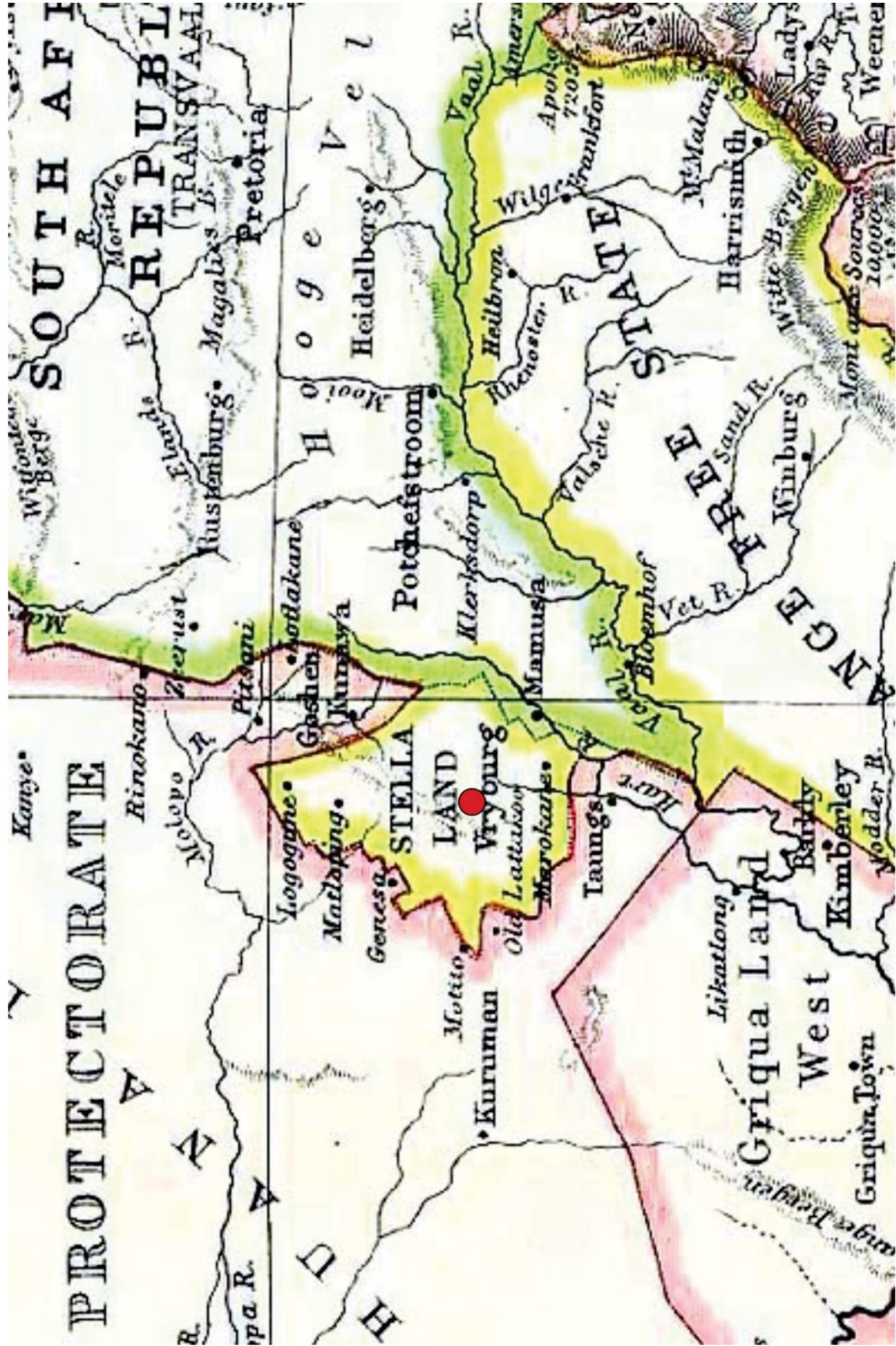


Figure 9. Contemporary map of Stellaland prior to its incorporation as a British protectorate in 1884.





Figure 10. Remains of degraded modern structures identified within the WWTW footprint.



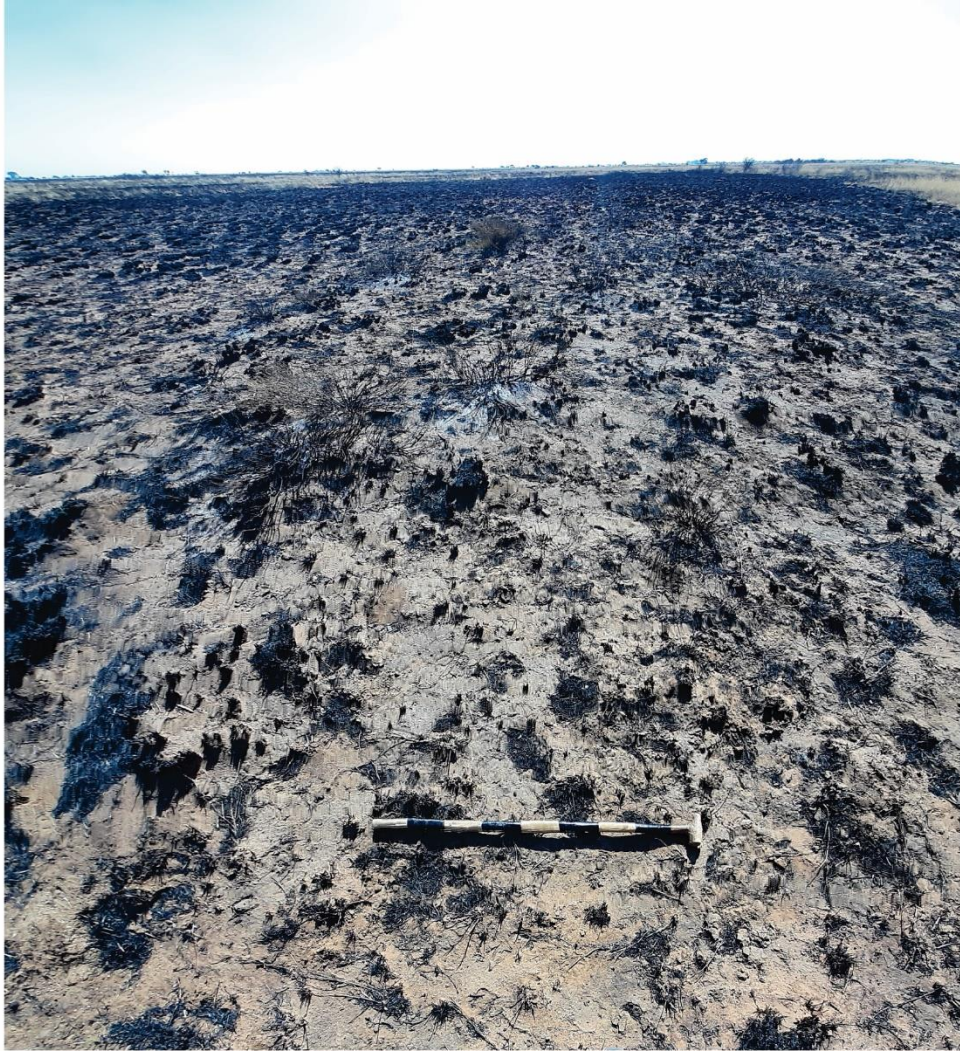


Figure 11. General view of the Centre Pivot area, looking west (above) and north (below).

## **Appendix 1: Archaeological Chance Finds Protocol for Developer**

### **Archaeology**

If any evidence of archaeological sites or remains, e.g. stone tool artifacts (**Fig. 10 & 11**), ostrich eggshell fragments, charcoal and ash heaps, or remnants of stone-made structures (**Fig. 12**) or unmarked graves (**Fig. 13**) are found during the proposed development, the SAHRA APM Unit (Phillip Hine 021 462 5402) must be alerted.

In the meantime, *potential archaeological structures such as stone-build enclosures, buildings or graves* must be avoided by a no-go buffer zone until further confirmation by the archaeologist. Smaller *in situ* material must be kept in place and protected from further damage by covering it with light but rigid object like a box, bucket or metal sheet.

If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit must be alerted immediately. A professional archaeologist must be contracted as soon as possible to inspect the findings.

If the newly discovered heritage resources prove to be of archaeological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA;





Figure 1. Example of general appearance of Stone Age artifacts rarely found intact as open sites and largely derived as isolated scatter on the landscape





Figure 2. Example of rare stone tool knapping site occasionally found near dolerite intrusions in the region.





Figure 3. Example of historical stone-build enclosure frequently found in the region.





Figure 4. Typical example of unmarked (above) and marked grave (below) - distinctive mound with occasional head markers and a characteristic dolerite cobble or limestone rubble dome.