

**Phase 1 Heritage Impact Assessment of the proposed
new poultry facility on the farm Herman 236 near
Wesselsbron, Free State Province.**

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Summary

A phase 1 Heritage Impact Assessment was carried out for the proposed new poultry facility development situated 4.5 km north of Wesselsbron, Free State Province. Sedimentary bedrock strata in the region are represented by Ecca Group mudrocks, siltstones and sandstones of the Middle Permian, argillaceous Volksrust Formation. The site is capped by a well-developed aeolian sand overburden with no outcrop visibility where no fossils or potential fossil exposures were observed. The pedestrian survey also indicated a severely degraded terrain as a result of previous farming activities with no evidence of *in situ* Stone Age archaeological material, capped or distributed as surface scatters on the landscape. There are also no indications of rock art (engravings), prehistoric structures, above ground signs of graves or historically significant buildings older than 60 years within the boundaries of the study area. Several farm worker dwellings have been recorded but are not considered to be historically significant. As far as the palaeontological heritage is concerned, the site is buffered by palaeontologically insignificant aeolian sand veneer with impact on potential fossil remains from underlying and moderately significant Ecca Group strata, considered to be low. The terrain is also regarded as of low archaeological significance and is assigned a rating of Generally Protected C (GP.C). As far as the palaeontological and archaeological heritage is concerned, the proposed development may proceed with no additional heritage assessments necessary, provided that all excavation activities are restricted to within the boundaries of the development footprint.

Introduction

A phase 1 Heritage Impact Assessment was carried out for the proposed new poultry facility development situated 4.5 km north of Wesselsbron, Free State Province. 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 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).

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 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.

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

The affected area covers 2.5 ha of open grassland near the Monyakeng Township about 4.5 km north of the Wesselsbron CBD (**Fig. 3 - 5**). Proposed land use includes the establishment of a poultry facility on the farm Herman 236.

Maps: 1:50 000 topographical map 2726CC Wesselsbron

1:250 000 geological map 2726 Kroonstad

General Site Coordinates: 27°48'46.47"S 26°21'30.60"E

Geology

Sedimentary bedrock strata in the region are represented by Ecca Group mudrocks, siltstones and sandstones of the Middle Permian, argillaceous Volksrust Formation (*Pvo*) (Schutte 1994; Johnson *et al.* 2006) (**Fig. 6**). The underlying sedimentary rocks are capped by thick Quaternary deposits comprising unconsolidated soils (derived from the *in situ* weathering of the parent rocks) and aeolian sands (*Qs*).

Background

Palaeontology

Although there are no records of fossil occurrences from the Volksrust Formation in the vicinity of the study area, the formation is characterized by the presence of plant fossils, with six genera, representing the glossopterids, cordaitaleans and possibly other seed fern groups (Anderson and Anderson 1985; Bamford 2003). It has also yielded rare temnospondyl amphibian remains, invertebrates including bivalves and insects. A pelecypod bivalve have been described from the distal sediments of a prograding delta, at the Beaufort Group–Ecca Group boundary (Cairncross *et al.*

2005) and beetles (Coleoptera) have been recorded from the formation in Kwazulu-Natal (Ponomarenko & Mostovski 2005). Reptile fossils are absent in the formation. The alluvial deposits of the Vaal and a number of its ancient tributaries, including the Vet, Doring and Sand Rivers, are well known for their unique record of the Pliocene and the Pleistocene, and numerous Late Neogene fossil localities are known from the region. Pliocene, river-deposited fossil occurrences located 10 and 30 km south of Odendaalsrus respectively, have been identified in terrace gravels along the Vet River and the Sand River. More recent exploratory surveys along the Doring, Sand and Vet Rivers indicate moderately fossiliferous overbank sediments and erosional gullies that frequently contain fossil remains of a variety of Quaternary-aged mammals (Brink *et al.* 1999; De Ruiter *et al.* 2010). Ancient pan sites at Mahemspan near the Vaal River and Whites near Hennenman have equally produced abundant Quaternary-aged mammal fossil remains.

Archaeology

The Stone Age archaeological footprint in the region is largely represented by the occurrence of open-site, Middle Stone Age (MSA) and Later Stone Age (LSA) assemblages that are mainly located near river drainages. Historical records indicate that a capped MSA artefact assemblage was recovered from the Allanridge railway siding north of Odendaalsrus. Unfortunately, the context of the assemblage is unknown. MSA as well as LSA artefacts, in association with mammal fossil remains, are also found in a series of erosional gullies along the Sand and Doring Rivers between Virginia and Theunissen (De Ruiter *et al.* 2011).

Gravel terraces of the Vaal River near Bloemhof which is located about 70 km west of Wesselsbron, are well known for their unique record of the Pleistocene. Numerous Early Stone Age handaxes, Middle Stone Age flake blades as well as the remains of Pleistocene mammalian fossils have been recovered in the region from gravel deposits 20 m to 50 m above riverbed. Early to Middle Stone Age artifacts derived from the Vaal River gravels include an abundance of Acheulian (Early Stone Age) handaxes, cleavers and core-axes, primarily made from quartzite. In addition, the gravel deposits are largely mantled by undifferentiated deposits of unconsolidated to semi-consolidated sediments, including calcrete, aeolianite, clay and Kalahari/Hutton Sands, of which the lower levels have shown evidence of high densities of Fauresmith blades - artifacts regarded as an important transitional stone tool industry at the beginning of the Middle Stone Age. Later Stone Age artifacts preserved in open-site

scatters have been recorded on the modern land surfaces flanking the river and its tributaries.

There are no records of rock engravings or Late Iron Age settlement complex known from the area. The study area is essentially situated outside the western periphery of distribution of Late Iron Age settlements below the Vals River in the Free State (Maggs 1976).

Field Assessment

The site is capped by a well-developed aeolian sand overburden with no outcrop visibility where no fossils or potential fossil exposures were observed. The pedestrian survey also indicated a severely degraded terrain as a result of previous farming activities with no evidence of *in situ* Stone Age archaeological material, capped or distributed as surface scatters on the landscape. There are also no indications of rock art (engravings), prehistoric structures, above ground signs of graves or historically significant buildings older than 60 years within the boundaries of the study area. Several farm worker dwellings have been recorded but are not considered to be historically significant (**Fig. 7**).

Impact Statement & Recommendation

As far as the palaeontological heritage is concerned, the site is buffered by palaeontologically insignificant aeolian sand veneer with impact on potential fossil remains from underlying and moderately significant Ecca Group strata, considered to be low.

The terrain is also regarded as of low archaeological significance and is assigned a rating of Generally Protected C (GP.C). As far as the palaeontological and archaeological heritage is concerned, the proposed development may proceed with no additional heritage assessments necessary, provided that all excavation activities are restricted to within the boundaries of the development footprint.

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.

A handwritten signature in black ink, appearing to read 'L Rossouw', written in a cursive style.

13 / 08 / 2019

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 the study area.



Figure 2. Position of the site in relation to Wesselsbron.



Figure 3. General view of the site, looking west.



Figure 4. General view of the site, looking north. Scale 1 = 10 cm



Figure 5. The site is capped by a well-developed aeolian sand overburden. Scale 1 = 10 cm.

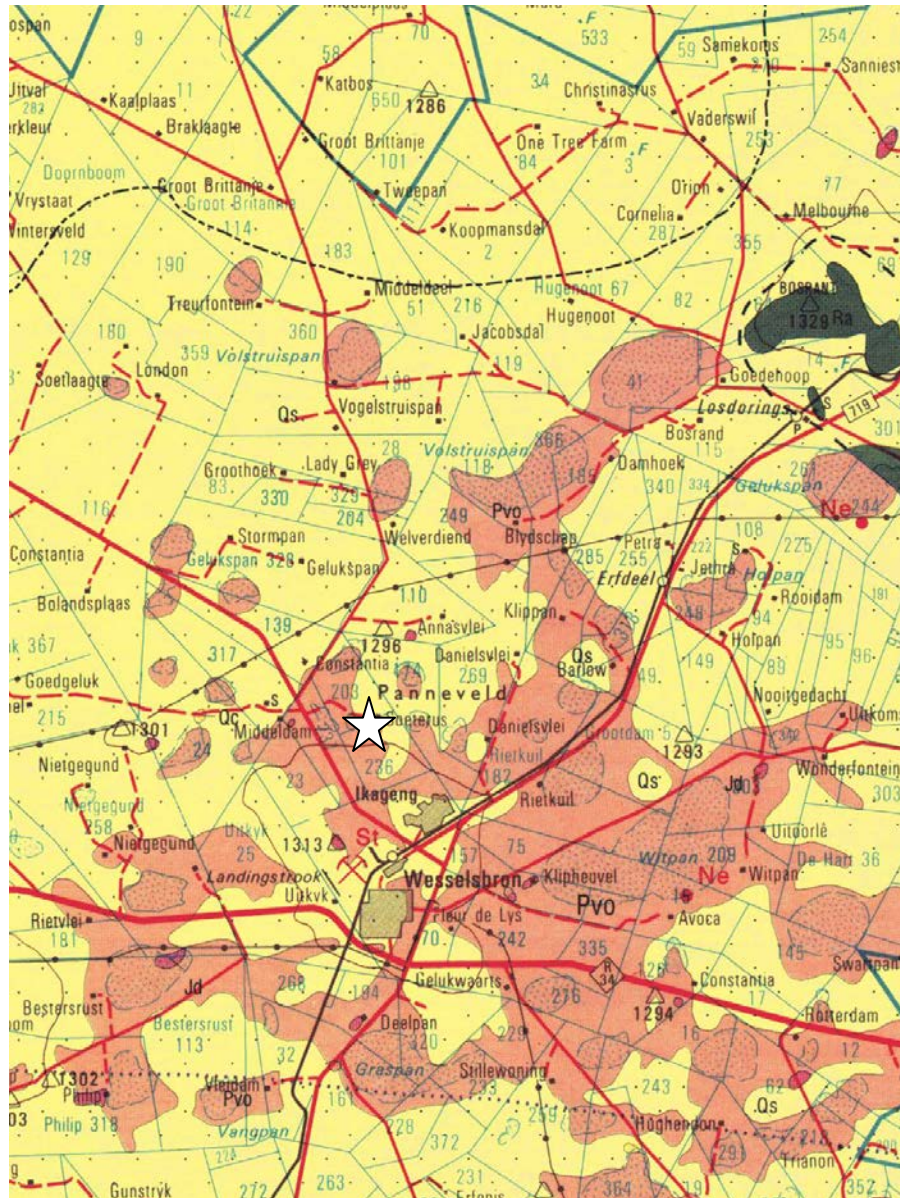


Figure 6. Sedimentary bedrock strata in the region are represented by Ecca Group mudrocks, siltstones and sandstones of the Middle Permian, argillaceous Volksrust Formation (*Pvo*) that is capped by thick Quaternary deposits comprising unconsolidated soils (derived from the *in situ* weathering of the parent rocks) and aeolian sands (*Qs*). Site marked by white star.



Figure 7. Dilapidated farm workers' dwellings.