Phase 1 Heritage Impact Assessment of a proposed new chicken broiler facility on Farm Fransina 2060 near Bloemfontein, Free State Province.

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Summary

A Phase 1 Heritage Impact Assessment was carried out for the proposed establishment of a new chicken broiler facility on the farm Fransina 2060 near the Rusfontein Dam south of Sannaspos in the Free State Province. The site covers approximately 1 ha of rocky outcrop located next to an existing chicken broiler facility. The proposed development footprint is located on a palaeontologically insignificant dolerite intrusion capped by a residual soil overburden of varying thickness. There is no evidence of *in situ* Stone Age archaeological material, rock art, prehistoric structures, graves or historically significant structures older than 60 years within the area demarcated for development. The terrain is regarded as of no palaeontological and low archaeological significance, and is assigned the rating of Generally Protected C (GP.C).

Introduction

A Phase 1 Heritage Impact Assessment was carried out for the proposed establishment of a new chicken broiler facility on the farm Fransina 2060 near the Rusfontein Dam south of Sannaspos in the Free State Province (**Fig. 1 & 2**). 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 are 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, powerline, 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;
- Any development exceeding 5000 m² in extent;
- Any development involving three or more existing erven or subdivisions thereof;
- Involving three or more subdivisions thereof which have been consolidated within the past five years;
- The rezoning of a site exceeding 10 000 m².
- Any other category of development provided for in regulations by the South
- African Heritage Resources Agency (SAHRA).

A range of contexts can be identified which typically have 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 (**Table 2**). 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.

Methodology

The archaeological significance of the affected area was evaluated through a desktop study and carried out 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. Relevant information, aerial photographs and site records were consulted and integrated with data acquired during the on-site inspection. The study area is rated according to field rating categories as prescribed by SAHRA (**Table 3**).

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 on heritage resources associated with the proposed development.

Description of the Affected Area

Locality data

1 : 50 000 scale topographic map: 2926BC Meadows

1 : 250 000 scale geological map 2924 Bloemfontein

The site covers approximately 1 ha of rocky outcrop located next to an existing chicken broiler facility on the farm Fransina 2060, which is situated about 5km due west of the Rusfontein Dam (**Fig. 3 & 4**).

Site coordinates: 29°16'49.07"S 26°34'38.29"E

Geology

Sedimentary rocks underlying the area belong to fossil – bearing sandstones, shales and mudstones of the Adelaide Subgroup (Beaufort Group, Karoo Supergroup) (*Pa*, **Fig. 5**). Jurassic-age dolerite intrusions, in the form of sills and dykes, occur extensively in the region (*Jd*, **Fig. 5**). Quaternary deposits younger than two million years in age, comprising unconsolidated soils and alluviuim from the Modder River and its tributaries, represent the Neogene regolith in the area.

Background

Numerous Quaternary-age fossils, assigned to the Pleistocene Period, have been recorded from various localities along the Modder River near Sannaspos to the north of the study area and include the extinct species *Equus capensis, Megalotragus priscus, Pelorovis antiquus, Antidorcas bondi* and *Equus lylei***.** Surface scatters of Later Stone Age and Middle Stone Age artefacts are frequent archaeological components along erosional gullies of the nearby Modder River and its tributaries (Koringspruit). Stone tools are mostly made of hornfels, a dark, fine-grained isotropic rock found in the hot-contact zone between the dolerites and shales in the area. Historically, the Thaba Nchu area east of the Modder River has a rich historical past and was for a short period proclaimed as a traditional Basutho area (Moroka) by the British authorities up until 1884. Following the capture of Bloemfontein by British forces during the Anglo-Boer War, military movements occurred well towards the east of Bloemfontein around Sannaspos and Thaba Nchu. The British were dealt a severe blow when Boer forces under command of Genl. Christiaan de Wet defeated Brigadier-General R.G. Broadwood's forces in a brief battle at Sannaspos.

Field Assessment

The proposed development footprint is located on a palaeontologically insignificant dolerite intrusion capped by a residual soil overburden of varying thickness (**Fig. 6**). No signs of *in situ* Stone Age archaeological material, rock art, prehistoric structures or graves were observed.

Impact Statement and Recommendation

There is no evidence of *in situ* Stone Age archaeological material, rock art, prehistoric structures, graves or historically significant structures older than 60 years within the area demarcated for development. The terrain is regarded as of no palaeontological and low archaeological significance, and is assigned the rating of Generally Protected C (GP.C).

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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.

27 / 09 / 2018

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 central interior of South Africa.

Heritage Context	Heritage Resources (Central Interior)	Impact
Palaeontology	Palaeozoic and Mesozoic fossil remains, e.g. Karoo Supergroup Neogene regolith	Road cuttings Quarry excavation Bridge and pipeline construction (Quaternary alluvial deposits)
Archaeology 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 artifacts, animal and human remains found near *inter alia* 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 dumps Structural remains Objects including industrial machinery, aircraft and maritime objects	Subsurface excavations including ground levelling, landscaping, foundation preparation, road building, bridge building, pipeline construction, construction of electrical infrastructure and alternative energy facilities, township development.
History	Historical townscapes Historical structures, i.e. older than 60 years Historical burial sites Places associated with social identity/displacement, e.g. Witsieshoek Cave Historical mission settlements, e.g. Bethulie, Beersheba	Demolition or alteration work. New development.
Natural Landscapes	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.
Relic Landscape Context	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. Examples of heritage resources located in the Free State Province.

Historically, archaeologically and palaeontologically significant heritage sites & landscapes	**Examples**
Landscapes with unique geological or palaeontological history	Karoo Basin Beaufort Group sedimentary strata Vredefort Dome World Heritage Site.
Landscapes characterised by certain geomorphological attributes where a range of archaeological and palaeontological sites could be located.	Vaal, Modder and Riet River valleys Pans, pandunes and natural springs of the Free State panveld.
Relic landscapes with evidence of past, now discontinued human activities	Cave sites in the Maluti Drakensberg region Southern Highveld pre-colonial settlement complexes.
Landscapes containing concentrations of historical structures.	Concentration camps & cemeteries from the South African War.
Historical towns, historically significant farmsteads, settlements & routes	Batho historical township area in Mangaung (Bloemfontein).
Battlefield Sites, burial grounds and grave sites older than 60 years.	

Table 3. 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 development footprint (portion of 1:50 000 scale topographic 2926BC Meadows).

Figure 2. Aerial view of the study area (red polygon).

Figure 3. General view of the study area (looking east towards the Rusfontein Dam).

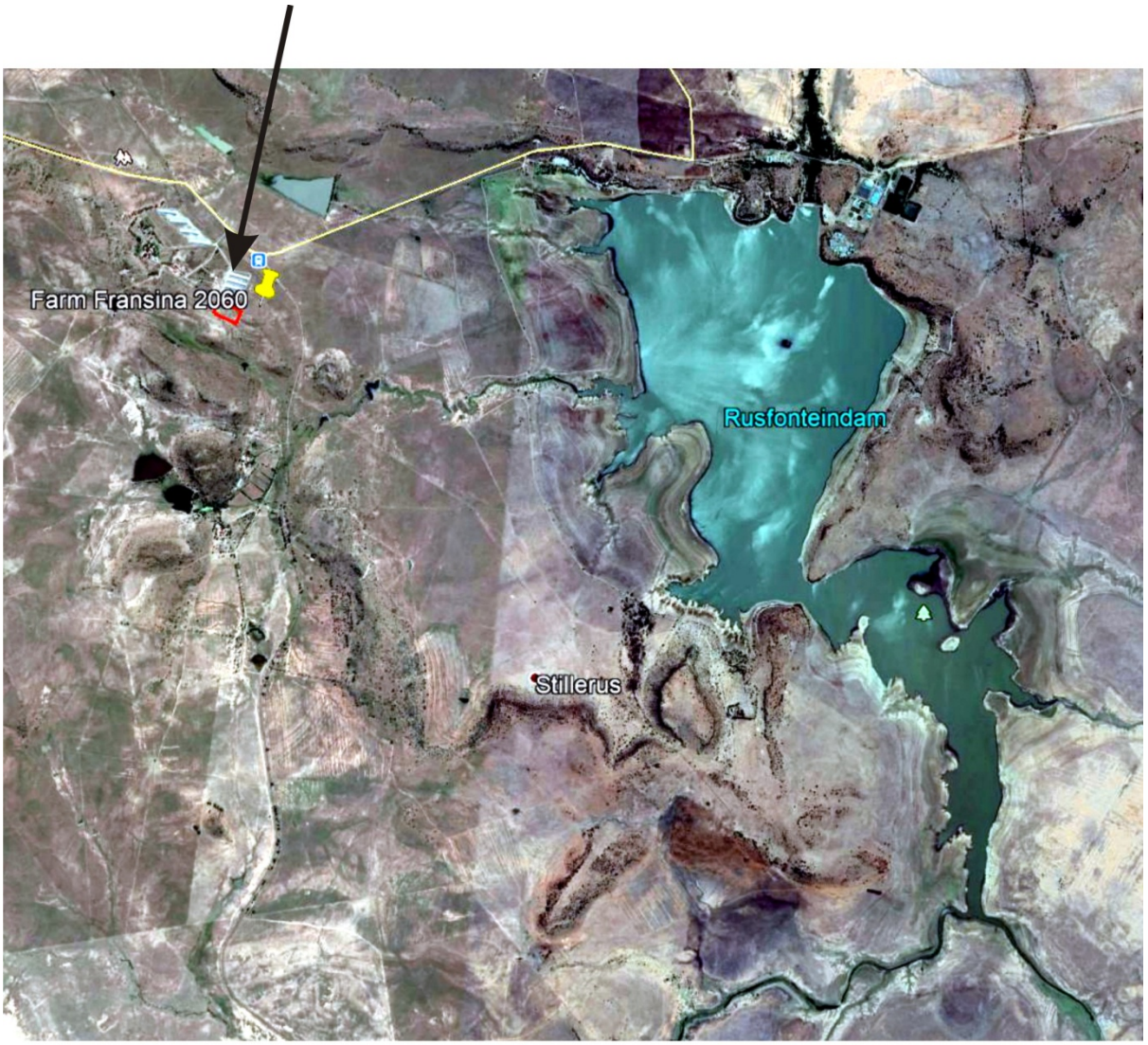

Figure 4. Aerial view of the site in relation to position of the Rusfontein Dam.

Figure 5. According to the 1:250 000 scale geological map 2924 Bloemfontein, sedimentary rocks underlying the area belong to fossil – bearing sandstones, shales and mudstones of the Adelaide Subgroup (***Pa***, Beaufort Group, Karoo Supergroup). Jurassic-age dolerite intrusions, in the form of sills and dykes, occur extensively in the region (***Jd***). Position of development footprint marked by yellow star.

Figure 6. The site is underlain by a palaeontologically insignificant dolerite intrusion (above left & below) that is capped by a residual soil overburden of varying thickness (above right).
Scale 1 = 10 cm.