

Phase 1 Heritage Impact Assessment for proposed new 7 ha pivot site on the farm Eenboom 208, Colesberg, NC Province.

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10 February 2018

Summary

The study area has already been heavily disturbed by the previous agricultural activities (installation of pivots). The proposed development will primarily affect geologically recent soils (residual soils and wind-blown sand), Impact on potentially intact archaeological remains or Quaternary fossils is considered unlikely. No evidence was found of *in situ* or capped Stone Age artifacts. There are no indications of prehistoric structures or rock art within the footprint area. There is also no evidence of informal graves or historical structures older than 60 years within the confines of the footprint. The extent of the proposed development is considered low in terms of palaeontological and archaeological impact. The terrain is not considered palaeontologically or archaeologically vulnerable and is assigned a site rating of Generally Protected C.

Introduction

A Phase 1 Heritage Impact assessment was carried for a proposed new 7 ha pivot site on the farm Eenboom 208 near Colesberg in the Northern Cape 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.

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**).

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.

Locality Data

The proposed development will cover 7 ha of existing farmland on the farm Eenboom 208, situated 46 km southeast of Colesberg (**Fig. 2 & 3**).

Map Ref.: 1: 50 000 topographic map 3125 AB Ysterberg

Site centroid coordinates: S 31°00'55.9" E 25°27'03.5"

Background

The geology of the region has been described by Le Roux (1993) and Johnson (2006) and is shown on the 1: 250 000 geological map 3024 Colesberg (Council for Geoscience, Pretoria 1997). The affected area is underlain by Late Permian Beaufort Group sediments of the lower Adelaide (*Pa*). These sedimentary rocks form the base on which younger, superficial deposits of Late Cenozoic age have been deposited (Partridge *et al.* 2006). This include pedocretes, colluvial slope deposits, sheet wash and alluvium. Dykes and sills of resistant Jurassic

dolerites (*Jd*) site is situated within the *Dicynodon* Assemblage Zone (AZ), which is one of eight vertebrate biozones identified within the Beaufort Group. (Rubidge 1995) (**Fig. 4 & 5**). The *Dicynodon* Assemblage represents the terminal phase of the Palaeozoic continental biota, that was dominated by therapsid “mammal-like reptiles” and *Glossopteris* Flora before it was largely wiped out by the end-Permian Mass Extinction Event (Ward *et al.* 2005). Fossil types from this biozone are listed in Keyser & Smith (1978-79) and Kitching (1995). Therapsids from this biozone occur generally well-preserved in mudrock horizons and are usually found as dispersed and isolated specimens associated with an abundance of calcareous nodules (Kitching 1995). Other vertebrate fossils include palaeoniscoid fish and crocodile-like temnospondyl amphibians. Overlying, late Cenozoic valley fill deposits may occasionally contain much younger fossil biotas, including the skeletal remains of Quaternary mammals (Klein 1984) non-marine molluscs and a variety of other microfossils.

Along much of the course of the upper Orange River and its tributaries alluvial deposits in the form of river terraces occur that contain occurrences of Early, Middle and Later Stone Age material eroding out of the overbank sediments (Sampson 1972). Stone Age surface sites are also common along valley floors and near dolerite hills and ridges within the Seacow River valley located about 25 km to the northwest of Colesberg (Samson 1984). Prehistoric archaeological remains previously recorded in the region include Stone Age artefacts and mammal fossil remains from sealed and or exposed contexts as well as rock engravings. Well-known sites recorded near the Orange River northeast and east of Colesberg also include cave sites like Riversmead, Glen Elliot and Holmsgrove Shelter (Sampson 1967). Stone tools found in the region 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. The region also bear a rich historical footprint with several trekboer and Anglo Boer War battlefield sites found around Colesberg.

Field Assessment

The field assessment indicates that the 7 ha study area is mantled by a well-developed soil overburden that has already been heavily disturbed by the previous agricultural activities (installation of previous pivots), where no sedimentary rock outcrop or fossils were observed (**Fig. 6**). No evidence was found of *in situ* or capped Stone Age artifacts. There are no indications of prehistoric structures or rock art within the footprint area. There is also no

evidence of informal graves or historical structures older than 60 years within the confines of the footprint.

Impact Statement and Recommendations

The proposed development will primarily affect geologically recent soils (residual soils and wind-blown sand), Impact on potentially intact Quaternary fossils is considered unlikely due to a lack of suitable alluvial deposits. No evidence was found of *in situ* or capped Stone Age artifacts. There are no indications of prehistoric structures or rock art within the footprint area. There is also no evidence of informal graves or historical structures older than 60 years within the confines of the footprint. The extent of the proposed development is considered low in terms of palaeontological and archaeological impact. The terrain is not considered palaeontologically or archaeologically vulnerable 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 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.

10 / 02 / 2018

Tables and 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

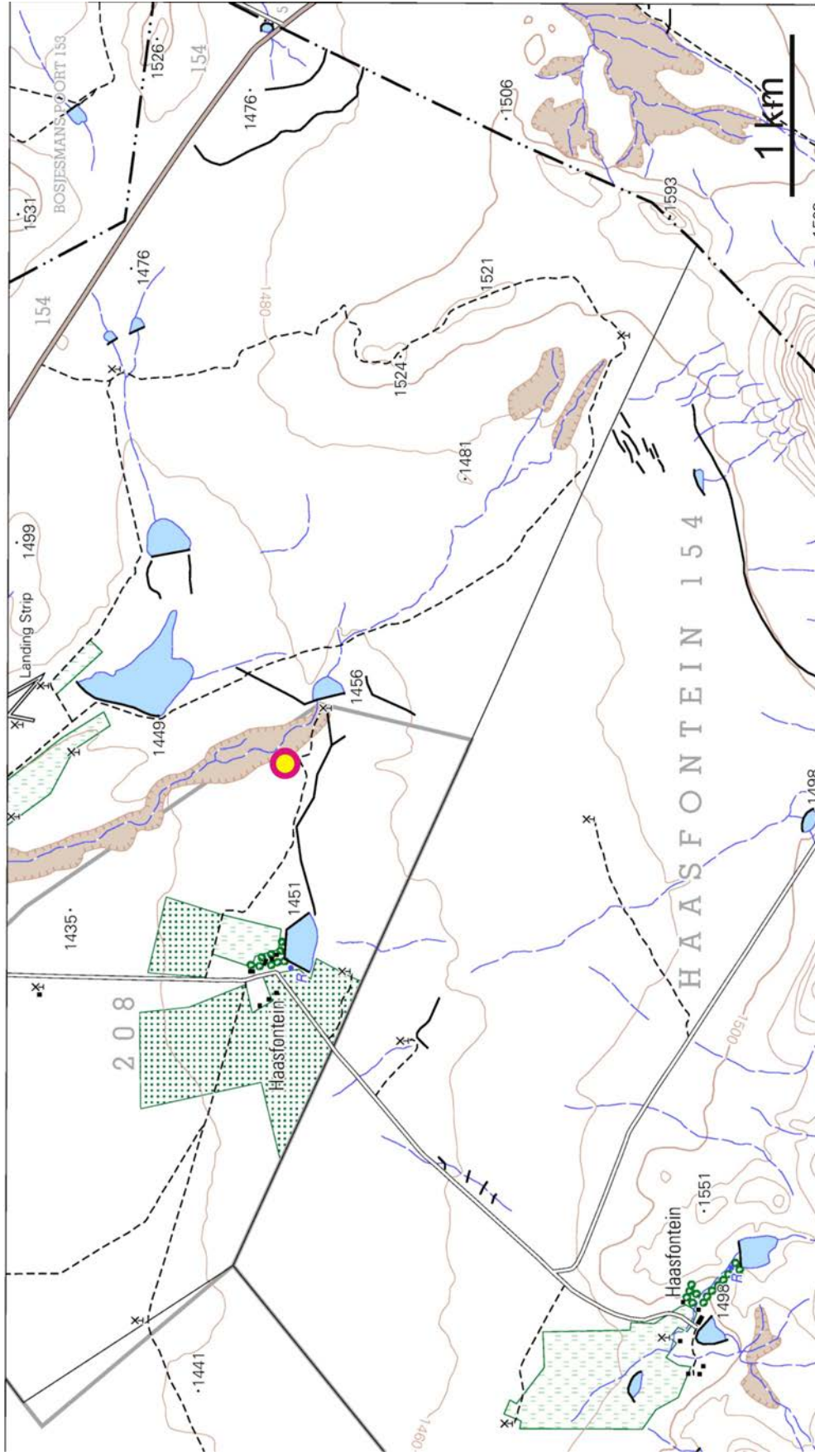


Figure 1. Map of the proposed pivot site on farm Eenboom 208 (portion of 1:50 000 scale topographic map 3125 AB Ysterberg).

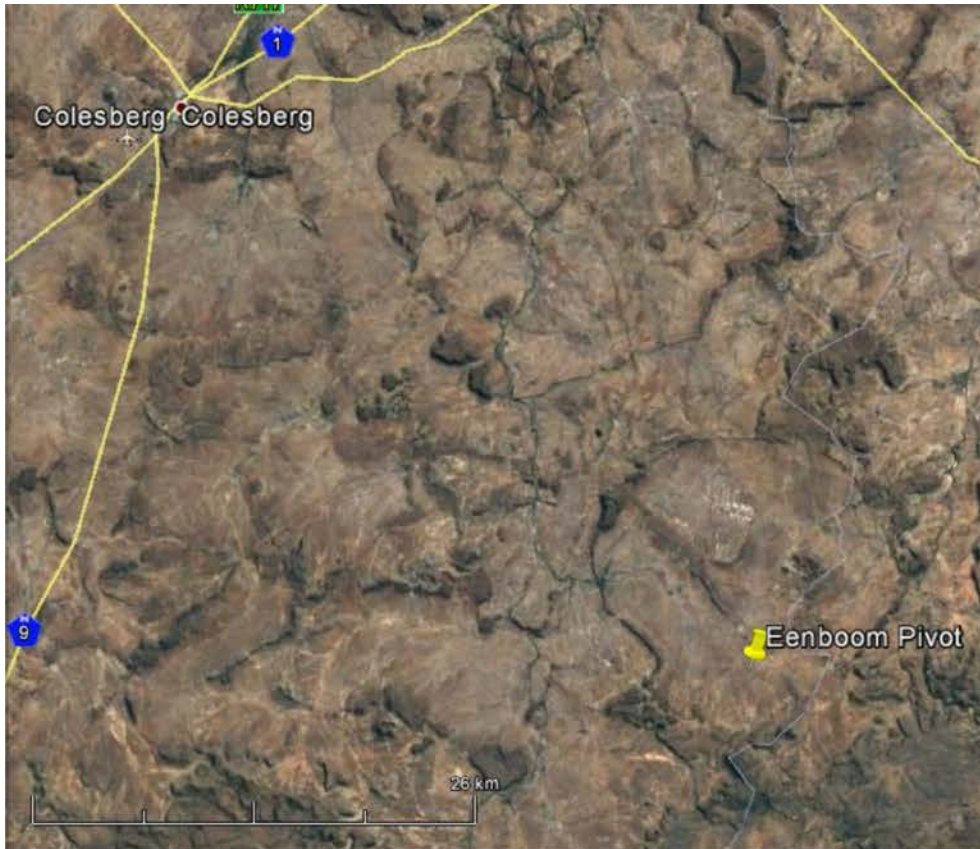


Figure 2. Aerial view of the proposed pivot locality.



Figure 3. General view of the pivot site, showing previously used agricultural land

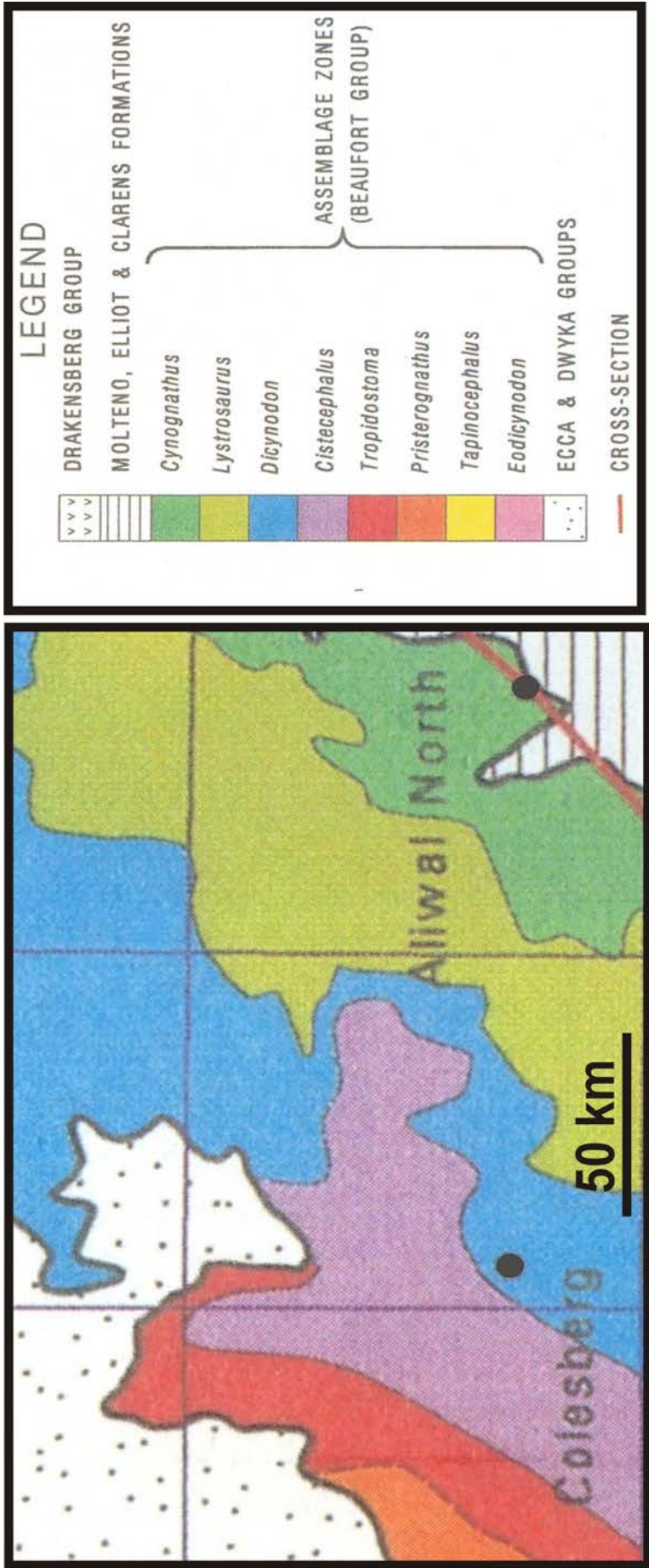


Figure 4. Geographical distribution of vertebrate biozones of the Beaufort Group around Colesberg (Rubidge 1995).

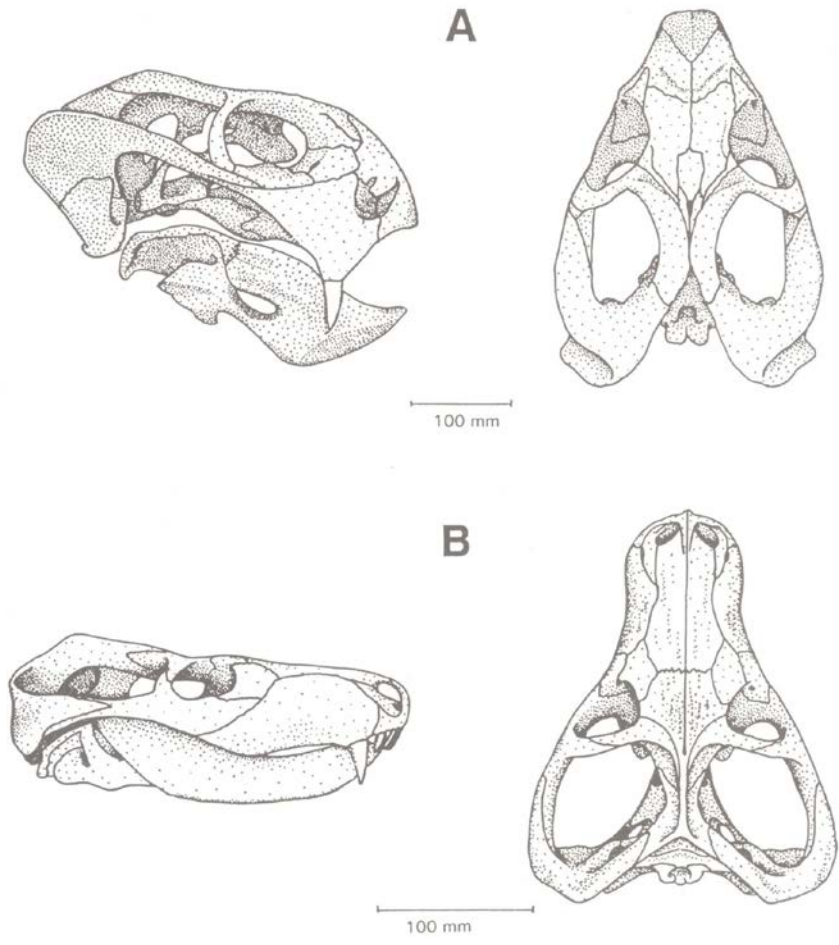


Figure 5. Lateral and dorsal views of biozone-defining fossils of the Dicynodon AZ.
(A) Dicynodon (B) Theriognathus