

**Phase 1 Archaeological Impact Assessment of a
proposed new 10 ha residential development in
Williston, Northern Cape Province.**

Lloyd Rossouw
National Museum
PO Box 266
Bloemfontein
03 / 05 / 2017

Summary

A Phase 1 Archaeological Impact Assessment was carried out over a 10 ha area designated for a proposed new residential development outside Williston in the Northern Cape Province. The affected area is underlain by intrusive volcanic rocks that are considered to be of no paleontological significance. It is highly unlikely that fossil remains will be encountered during excavation activities within the study area. There is also little chance of finding fossil material within the superficial overburden because of a lack of suitable Quaternary-aged alluvial deposits at the site (closest deposits consist of well-developed overbank sediments of the Sak River located 1.5 km southwest of the study area). As far as the palaeontological heritage is concerned, the proposed development may proceed with no further palaeontological assessments required.

Impact on potential *in situ* archaeological remains, engraving localities or historically significant structures within the study area is considered unlikely. There are no major archaeological grounds to suspend excavation activities within the proposed development footprint. The proposed development footprint is assigned a site rating of Generally Protected C (GP.C).

Table of Contents

Summary	2
Introduction	4
Methodology	5
Locality data	6
Background	6
Field Assessment	7
Impact Statement and Recommendation	7
References	8
Tables and Figures	10

Introduction

A Phase 1 Archaeological Impact Assessment was carried out over a 10 ha area designated for a proposed new residential development outside Williston in the Northern Cape Province (**Fig. 1**). The region's unique and non-renewable archaeological and palaeontological 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 including archaeological and palaeontological sites in the area to be developed, and that make recommendations for protection or mitigation of the impact of the sites.

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, 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).

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. The involvement of the heritage specialist in such a process is usually necessary when a proposed development may affect a heritage resource, whether it is formally protected or unprotected, known or unknown. 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.

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 archaeological information, aerial photographs and site records were consulted and integrated with data acquired during the on-site inspection.

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 associated with the proposed development.

Field Rating

Site significance classification standards as prescribed by SAHRA (2005) for archaeological sites were used for the purpose of this report (**Table 2**).

Locality data

1 : 50 000 scale topographic map: 3120BD Williston

1 : 250 000 scale geological map 3120 Williston

The study area covers 10 ha of open, flat scrubland adjacent to Engelbrecht Street on the southern outskirts of Williston (**Fig. 2 - 4**).

General site coordinates (**Fig. 2**):

A) 31°20'52.02"S 20°55'12.00"E

B) 31°20'52.27"S 20°55'24.84"E

C) 31°21'0.34"S 20°55'24.57"E

D) 31°21'0.74"S 20°55'12.71"E

Background

The geology of the region has been described by Viljoen (1989). Williston is situated within the Early-Mid Permian Ecca Group (Karoo Supergroup), which is represented by sandstones and shales associated with delta plain environments that are known to contain fish scales, rare bone fragments, low diversity non-marine trace fossils, petrified wood and *Glossopteris* Flora (Johnson *et al.* 2006). The area around Williston is also extensively intruded by weather-resistant Jurassic dolerite dykes and sills (Karoo Dolerite Suite) (**Fig. 5**). Superficial deposits in the region consist mainly of residual soils of varying depth, scree and alluvium

The Bo - Karoo landscape is characterized by mostly weathered stone tool surface scatters, while a number of Early, Middle and Later Stone Age sites have been associated with intermittent water courses, pans and pan-related sediments such as the one at Bundu Farm, a pan site on the eastern edge of Bushmanland, located between Marydale and Copperton, that contains a sequence including Earlier, Middle and Later Stone Age assemblages and preserved fauna (Kiberd 2006). According to Beaumont (1986) the Dwyka debris-littered plains between Kenhardt and Pofadder

are associated with a low density artefact scatters representing the utilization of quartzite during the terminal Pleistocene. Archaeological records and historical eyewitness accounts suggest that Bushman hunter-gatherer and Khoi herder occupied the region prior to European settlement (Burchell 1824; Elphick 1977). Early travellers frequently encountered Koranna and Bushmen groups in the region (Burchell 1824; Skead 2009). Iron Age occupation is absent from the region as the most southerly distribution of Iron Age settlement in the northern Cape was limited to north of the Orange River by the end of 18th century (Maggs 1974; Humphreys 1976). Hunter-gatherer living sites and abundant rock engraving localities are common. These localities are attributed to the /Xam, which is an extinct group of the San who occupied the Bushmanland and Upper Karoo regions until about 120 years ago (Deacon 1988). A fine example of rock engraving sites is found on a dolerite hill at Springbok Oog, northwest of Van Wyksvlei where a large concentration of rock engravings, including those of 19th century European settlers, have been recorded (van Riet Low 1941; Deacon 1988).

Field Assessment

The study area has been degraded by human activities, mainly in the form of littering (**Fig. 6**). It is underlain by dolerite outcrop that is capped by a residual soil overburden of varying thickness (**Fig. 7 & 8**). A foot survey of the terrain revealed no evidence for the accumulation and preservation of intact fossil material within these superficial sediments. The pedestrian survey also revealed no indication of *in situ* Stone Age archaeological material, capped or distributed as surface scatters on the landscape. Two highly weathered stone tool flakes made from hornfels, were recorded as isolated surface scatters (**Fig. 9**). There are also no indications of rock art (engravings on dolerite outcrop), prehistoric structures, Anglo Boer War sites, graves or buildings with historical significance older than 60 years situated within the boundaries of the study area.

Impact Statement and Recommendation

The affected area is underlain by intrusive volcanic rocks that are considered to be of no paleontological significance. It is highly unlikely that fossil remains will be encountered during excavation activities within the study area. There is also little chance of finding fossil material within the superficial overburden because of a lack of suitable Quaternary-aged alluvial deposits at the site (closest deposits are well-

developed overbank sediments of the Sak River located 1.5 km southwest of the study area). As far as the palaeontological heritage is concerned, the proposed development may proceed with no further palaeontological assessments required.

Impact on potential *in situ* archaeological remains, engraving localities or historically significant structures within the study area is considered unlikely. There are no major archaeological grounds to suspend excavation activities within the proposed development footprint. The proposed development footprint is assigned a site rating of Generally Protected C (GP.C).

References

- Beaumont P.B. 1986. Where did all the young men go during 0-18 Stage 2? *Palaeoecology of Africa*. 17:79-86.
- Burchell, W.J. 1824. *Travels in the interior of southern Africa*, Vol 2. London. Longman, Hurst, Ries, Orme, Brown & Green. 688pp.
- Deacon, J. 1988. The power of place in understanding southern San rock engravings. *World Archaeology* 20(1): 130 – 140.
- De Wit, M.C.J., Marshall, T.R. and Partridge, T.C. 2000. Fluvial Deposits and Drainage Evolution. **In:** T.C.Partridge & R.R. Maud. *The Cenozoic of Southern Africa*. Oxford Monographs on Geology and Geophysics No. 40, 55 – 72.
- Elphick, R., 1977. *Kraal and Castle: Khoikhoi and the founding of White South Africa*. London. Yale University Press.
- Humphreys, A.J.B. 1976. Note on the Southern Limits of Iron Age Settlement in the Northern Cape. *South African Archaeological Bulletin* 31 (121/122): 54-57.
- Humphreys, A.J.B. 1982. Cultural Material from Burials on the Farm St. Clair, Douglas Area, Northern Cape. *South African Archaeological Bulletin*, 37 (136) 68-70.
- Johnson, M.R. *et. al.* 2006. Sedimentary Rocks of the Karoo Supergroup. **In:** M.R. Johnson, *et. al.* (eds). *The Geology of South Africa*. Geological Society of South Africa.
- Kiberd, P. 2006. Bundu Farm: a report on archaeological and palaeoenvironmental assemblages from a pan site in Bushmanland, Northern Cape, South Africa. *South African Archaeological Bulletin* 61: 189-201.
- Maggs, T. M. O'C. 1974. *Early Farming communities on the southern highveld: a survey of Iron Age settlement*. Unpublished Ph.D. thesis, University of Cape Town.

Partridge, T.C. & Maud, R.R. 2000. *The Cenozoic of Southern Africa*. Oxford Monographs on Geology and Geophysics No. 40.

Skead, C.J. 2009. Historical plant incidence in southern Africa. A collection of early travel records in southern Africa. *Strelitzia* 24, 394 pp. Pretoria. SANBI.

Van Riet Lowe, C. 1941. Prehistoric art in South Africa. Archaeological Series 5. Bureau of Archaeology. Government Printer. Pretoria. 38pp.

Viljoen, J.H.A. 1989. *Die geologie van die gebied Williston*. Explanation to geology sheet 3120 Williston, 30 pp. Council for Geoscience, 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. 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.

03 / 05 / 2017

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 Free State.

Heritage Context	Heritage Resources	Impact
Palaeontology	<ul style="list-style-type: none"> • Palaeozoic and Mesozoic fossil remains, e.g. Karoo Supergroup. • Neogene regolith, e.g. Quaternary alluvial deposits, lacustrine sediments, natural springs, pans 	Subsurface excavations including ground levelling, landscaping & foundation preparation, road cuttings, quarries, mining development, bridge and pipeline construction , new cemeteries, construction of electrical infrastructure and alternative energy facilities, township development, demolition or alteration work.
Archaeology Early Stone Age Middle Stone Age LSA - Herder	<ul style="list-style-type: none"> • Localized Stone Age sites, containing cultural remains, animal and human remains found near or at <i>inter alia</i> the following: river courses and natural springs; pans and natural deflation hollows; stone tool making sites (e.g. dolerite contact zones); cave sites and rock shelters; freshwater shell middens; • Ancient, kraals and stonewalled complexes; • Abandoned areas of past human settlement and burials sites over 100 years old 	
Historical	<ul style="list-style-type: none"> • Historical sites and structures older than 60 years old, including rubbish dumps/middens; • Objects, including industrial machinery, older than 60 years; • Burial sites, e.g. concentration camps; • Burial architecture older than 60 years; • Graves (marked or unmarked, known or unknown); • Places associated with social identity/displacement, e.g. Witsieshoek Cave; • Mission settlements, e.g. Bethulie and Beersheba 	
Natural Landscapes	<ul style="list-style-type: none"> • 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. 	
Relic Landscapes	<ul style="list-style-type: none"> • Battle /military sites and graveyards • Pre-colonial settlements 	

Table 2. 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

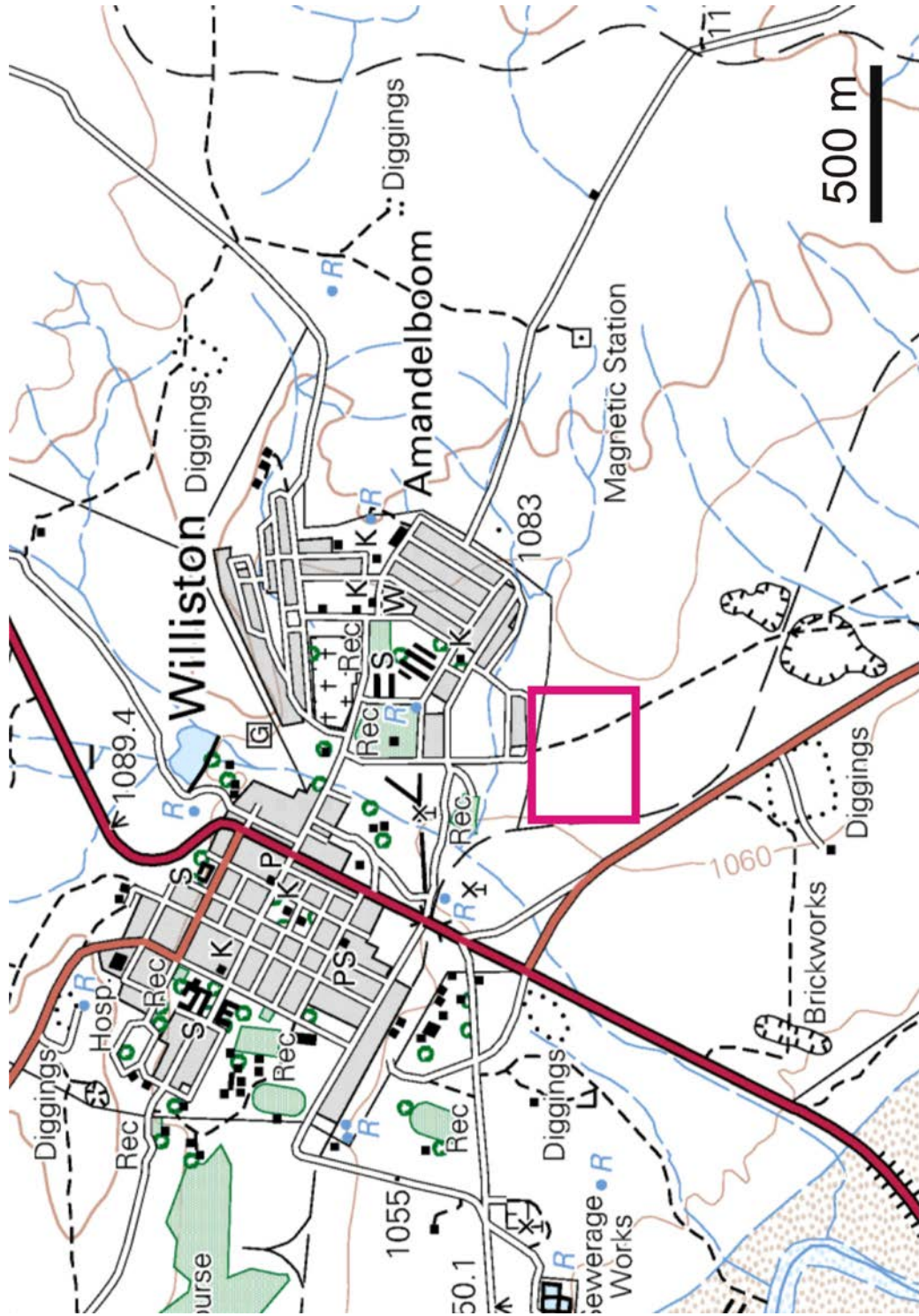


Figure 1. Map of the study area (portion of 1:50 000 scale topographic 3120BD Williston).



Figure 2. Aerial view of the study area.

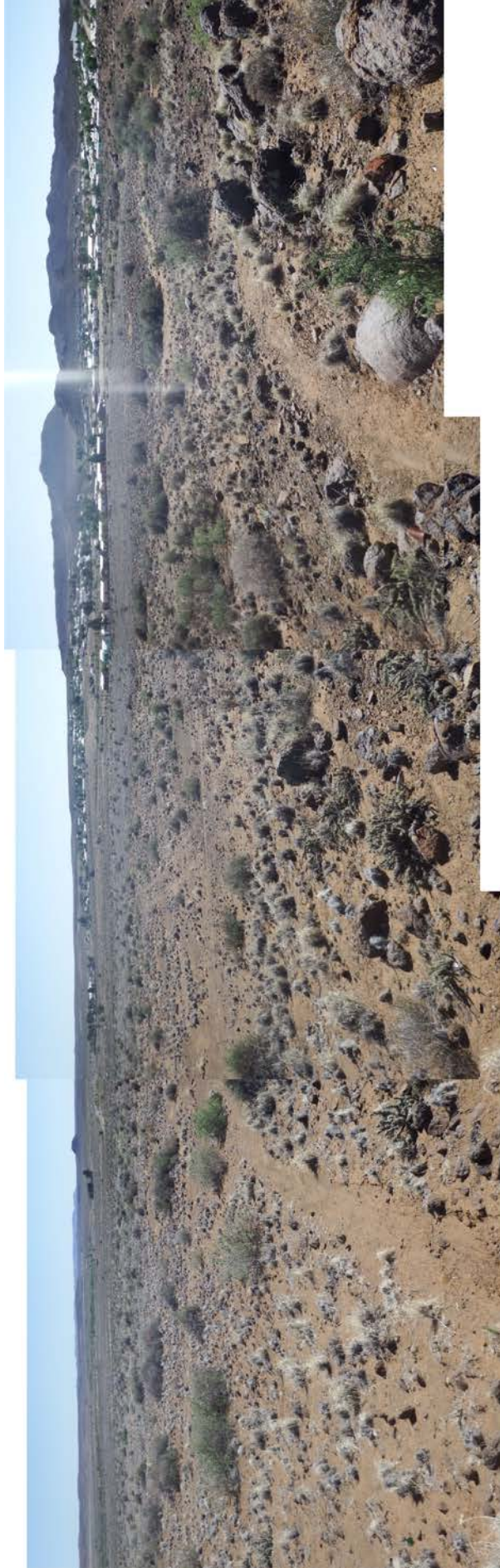


Figure 3. General view of the study area, looking northwest.



Figure 5. According to the SAHRIS Palaeo-sensitivity map of the area, the site is located on bedrock that is not considered to be palaeontologically sensitive. While Williston is situated within the outcrop area of the moderately significant Ecca Group (green areas, *Pwa*), the site is underlain by Jurassic dolerite intrusions (grey areas, *Jd*).



Figure 6. Litter and trash heaps are widely distributed over the terrain.



Figure 7. Weather-resistant dolerites



Figure 8. The site is capped by carbonate-rich residual soils of varying depth.



Figure 9. Highly weathered stone tool flakes made from hornfels, recorded as isolated surface scatters.