Phase 1 Heritage Impact Assessment of an existing open pit mine on farm Mynplaas 931, Thaba Phatswa, FS Province.

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Summary

A Phase 1 Heritage Impact Assessment was carried out for an existing open mine located near Thaba Phatswa in the Free State Province. The study area lies on low topography terrain, about 3 km southeast of the Thaba Phatshwa settlement, on the farm Mynplaas 931, and consists of a 5 ha - area previously used for open mine operations. The footprint is located on Kimberlite dyke considered to be of low palaeontological significance. These cf. Cretaceous intrusions "cooked" the adjacent sedimentary rocks with the effect of hardening and warping the surrounding sedimentary rocks and destroying any potential fossil plant material or neighboring vertebrate fossils. Intact Quaternary sediments (topsoil overburden) around the site is considered not conducive for the preservation of Quaternary vertebrate fossils (e.g. lack of suitably developed overburden, absence of pan sediments, springs and extensive alluvial / overbank deposits)**.** The site has been severely degraded by previous mining activities. There is no above-ground evidence of historically significant building structures older than 60 years, Stone Age archaeological remains, Iron Age structures or material of cultural significance within the confines of the development footprint. As for potential palaeontological impact, the development may proceed, provided that all excavation activities are restricted to within the boundaries of the previously disturbed footprint. As for potential archaeological impact, the archaeological and cultural component of the proposed project footprint is assigned a site rating of General Protection C (GP.C). The development may proceed, provided that all excavation activities are restricted to within the boundaries of the previously disturbed footprint.

Introduction

A Phase 1 Heritage Impact Assessment was carried out for an existing open mine pit on the farm Mynplaas 931 near Thaba Phatswa in the Free State Province (Fig. 1 & 2). The extent of the affected areas (over 5000 m2) falls within the requirements for a Heritage Impact Assessment (HIA) as required by Section 38 (Heritage Resources Management) of the South African National Heritage Resources Act (Act No. 25 of 1999).

Terms of Reference

- Identify and map possible heritage sites and occurrences using published and database 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.

Approach and Methodology

The heritage significance of the affected area was based on existing field data, database information and published literature. A field assessment, using a Garmin Etrex Vista GPS hand model (set to the WGS 84 map datum) and a digital camera for recording purposes followed this. Geological maps, aerial photographs and site records were integrated with data acquired during the on-site inspection. The study area is rated according to field rating categories as prescribed by SAHRA (**Table 1**).

Locality data

Maps: 1:50 000 scale topographical map 2927AC Thaba Phatswha

1:250 scale geological map 2926 Bloemfontein

Site coordinates (**Fig. 2**):

A) 29°20'8.09"S 27° 8'38.14"E

B) 29°20'6.20"S 27° 8'48.32"E

C) 29°20'11.65"S 27° 8'49.51"E

D) 29°20'13.70"S 27° 8'39.46"E

The study area lies on low topography terrain, about 3 km southeast of the Thaba Phatshwa settlement, on the farm Mynplaas 931, and consists of a 5 ha - area previously used for open mine operations (**Fig. 3 & 4**).

Background

Palaeontology

The study area is located within the outcrop area of the late Permian Tarkastad Subgroup sedimentary strata of the Karoo Supergroup (Theron 1963; Johnson et al. 2006) (**Fig. 5**). Intrusive dykes and sills of resistant Jurassic dolerites are common in the region, but are not palaeontologically significant. Tarkastad Subgroup sedimentary strata in the region include *Lystrosaurus* and *Cynognathus* Assemblage Zone vertebrate fossils, respectively characterized by an abundance of *Lystrosaurus* and presence of *Cynognathus, Diademodon and Kannemeyeria* in the absence of *Lystrosaurus* (Groenewald & Kitching 1995, Kitching 1995) (**Fig 6**). Known palaeontological sites located on the 2927AC quarter degree grid include *Cynognathus* AZ vertebrate fossils found on the northwestern slopes of Thaba Phatswa, about 6 km west-northwest of the study area.

Archaeology

The archaeological footprint in the area are primarily represented by Stone Age archaeological localities, rock art sites and an extensive footprint related to the distribution of Iron Age settlements and early history of Sotho-speaking communities along the Caledon River Valley. Previously recorded Stone Age sites in the region are found at Bokpoort, Orange Springs Fort Savange, Leliehoek and Rose Cottage Cave. Rock shelters associated with more recent hunter – gatherer activities are found at Rooikrans, Mauermanshoek, Westbury and Tienfontein. Historical accounts of the middle Caledon Valley indicate that hunter-gatherers survived as communities until the end of the Basuto Wars and the establishment of European farms in 1869. Stow (1905) recorded traditions about the last "Bushmen" inhabitants of the Korannaberg/Viervoetberg (Mequatling) situated between Excelsior and Labybrand, and the Platberg situated about 4 km south of Ladybrand. Numerous rock art sites have been recorded in the region with over 30 farms, listed in the Ladybrand district (Van Riet Low 1941).

A number of Iron Age settlements, which resemble Maggs's Type V settlement pattern in many aspects of their material culture, are found in the Caledon Valley and surrounds, including those at Mequatling and Tihela. According to historical accounts, the southward migration of early Sotho- speaking communities led to at least one group reaching the Caledon Valley about the mid- seventeenth century and occupying most of the upper and middle parts of the valley by 1800 AD. A major event to take place among the indigenous tribes of the interior highveld of South Africa before the coming of European settlers was the Difaqane raids and wars, which led to the segmentation of the Southern Sotho into numerous antagonistic communities scattered along the Caledon River Valley. One group was the Leghoya who in 1810 or 1812, were finally conquered and completely absorbed by the Taung under their chief, Moletsane, with whom they settled at Mequatling, to the west of Ladybrand, in 1837.

Although the Leghoya were subjects of Moletsane they lived as separate pockets among the Taung and actually retained their own chief. In 1869, by the Treaty of Aliwal North, Moletsane's territory, which had previously been part of Basutoland, was ceded to the Orange Free State, and Moletsane with his Taung and Leghoya followers moved into south Basutoland, between Mafeteng and Mohale's Hoek, where he was granted land by Moshesh.

The Thaba Phatswa settlement is located about 3 km northwest of the site takes its name from the mountain Thaba Phatswa, which is of Setswana or Sesotho origin and means 'long black mountain' (Ellenberger 1992). In 1940, ten Afrikaans 'coloured' families had been relocated to the Thaba Phatswa settlement from a nearby farm (Brakfontein no. 140) and from the Transkei (Murray 1992). The greater majority of these so-called coloureds are descendants of Carolus Baatje's followers, the so-called Newlanders who have lived in the Caledon River valley since the 1830's (Erasmus 2019). The settlement was developed in 1940 on the farms Thaba Patchoa, Thaba Potchoaberg, Mammashoek, and Dassiehoek. The original owner of Thaba Phatswa was Mr Stephanus Koko, a son from the Barolong chief Moroka's fourth house (Murray 1992). These farms initially stayed in the possession of the Barolong as South African Native Trust (SANT) land, whereafter it was purchased by the former Department of Land Affairs and transferred it to the Department of Coloured Affairs (Murray 1992). A successful land claim has seen the transfer of these three farms in 2004 to the Boitumelo Communal Property Association, an association consisting of 44 families who have lived on and exploited the land as tenants.

Field Assessment and Recommendations

The footprint is located on a Kimberlite dyke considered to be of low palaeontological significance (**Fig. 7**). These cf. Cretaceous intrusions "cooked" the adjacent sedimentary rocks with the effect of hardening and warping the surrounding sedimentary rocks and destroying any potential fossil plant material or neighboring vertebrate fossils (**Fig. 7**). Intact Quaternary sediments (topsoil overburden) around the site is considered not conducive for the preservation of Quaternary vertebrate fossils (e.g. lack of suitably developed overburden, absence of pan sediments, springs and extensive alluvial / overbank deposits)**.** The site has been severely degraded by previous mining activities. There is no above-ground evidence of historically significant building structures older than 60 years, Stone Age archaeological remains, Iron Age structures or material of cultural significance within the confines of the development footprint.

As for potential palaeontological impact, the development may proceed, provided that all excavation activities are restricted to within the boundaries of the footprint.

As for potential archaeological impact, the archaeological and cultural component of the proposed project footprint is assigned a site rating of General Protection C (GP.C) (**Table 1**). The development may proceed, provided that all excavation activities are restricted to within the boundaries of the footprint.

References

Cochrane, G.W.G. 2008. A Comparison of Middle Stone Age and Later Stone Age Blades from South Africa. *Journal of Field Archaeology 33* (4) 429-448.

Duncan, A.R. and Marsh, J.S. 2006. *The Karoo Igneous Province*. **In**: M.R. Johnson, *et al*. (eds). The Geology of South Africa. Geological Society of South Africa.

Ellenberger, DF 1992. History of the Basuto: Ancient and Modern. Morija: Morija Museum & Archives.

Erasmus, P.A. 2019. The land struggle of the Newlanders of Thaba Phatswa. Journal for Contemporary History 44(1):65-89.

Groenewald G.H. and Kitching, J.W. 1995. Biostratigraphy of the Lystrosaurus AZ. **In**: B.S. Rubidge, *Biostratigraphy of the Beaufort Group*. Biostrat. Ser. S.Afr. Comm. Strat. 35 – 39.

Humphreys, A.J.B. 1991. On the Distribution and Dating of Bifacial Tanged and Barbed Arrowheads in the Interior of South Africa. *South African Archaeological Bulletin* 46 (153)

Johnson *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.

Kitching J.W. 1995. Biostratigraphy of the Cynognathus AZ. **In**: B.S. Rubidge, *Biostratigraphy of the Beaufort Group*. Biostrat. Ser. S.Afr. Comm. Strat. 40 - 45.

Lye, W.F. 1967.The Difiqane: The Mfecane in the Southern Sotho Area, 1822 – 1824. *Journal of African History* 8 (1) 107-131

Maggs, T O'C 1976. Iron Age Patterns and Sotho History on the Southern Highveld, South Africa. *World Archaeology* 7(3) 318-332.

Murray, C 1992. Black Mountain: Land, Class and Power in the Eastern Orange Free State, 1880s to 1980s. London: Witwatersrand University Press.

Stow, G.W. 1905. *The Native Races of South Africa*. London.

Theron, J.C. 1963. Geology of Bloemfontein area. Dept. of Mines. Government Printer, Pretoria.

Thorp, C. and De Ruiter, D. 1997. Evidence for Interaction from Recent Hunter-Gatherer Sites in the Caledon Valley. *African Archaeological Review* 14 (4): 231-256.

Van Riet Lowe, C. 1941. Prehistoric art in SA. *Archaeological Series No. 5*. Bureau of Archaeology. Dept. Of the Interior, Pretoria.

DECLARATION OF INDEPENDENCE

Paleo Field Services act as an independent specialist consultant. PFS do not 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. PFS has no interest in secondary or downstream developments as a result of the authorization of this project.

06 / 10 / 2022

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

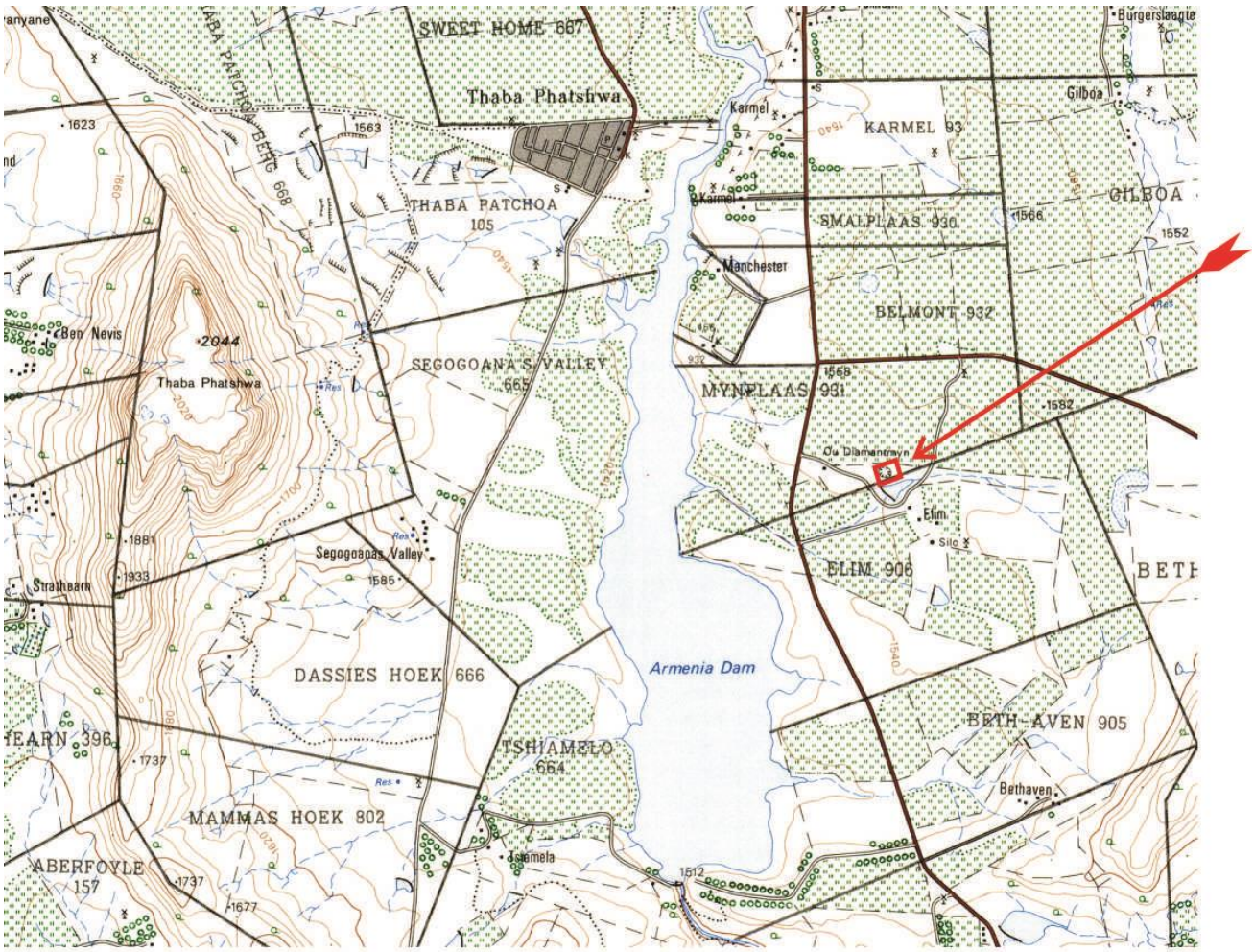


Figure 1. Map of the study area marked on portion of 1:50 000 scale topographic map 2927AC Thaba Phatswa.

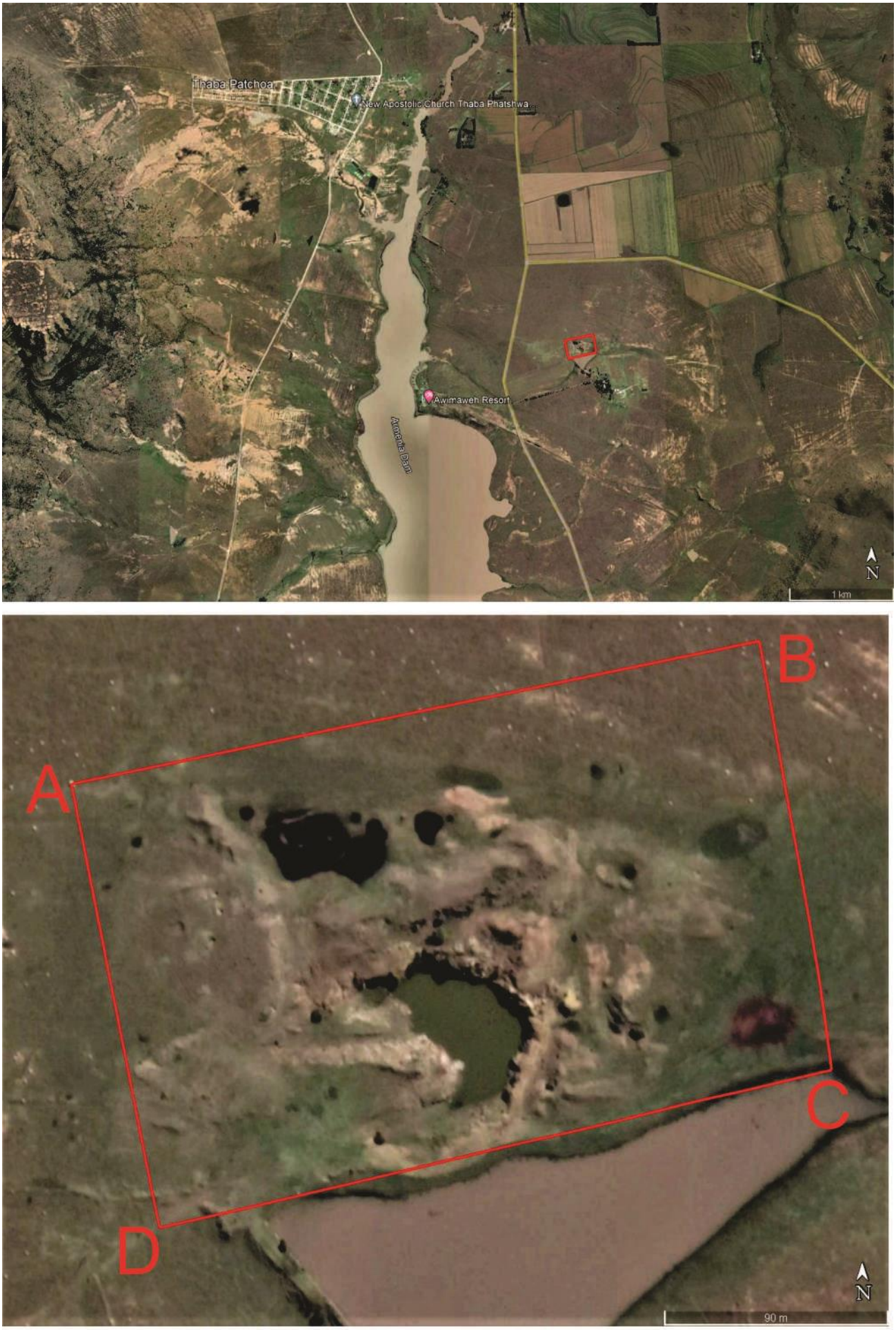


Figure 2. Aerial view of the site.

Figure 3, General view of site, looking east (above) and west towards Thaba Phatswa Mountain (below).

Figure 4. General view of the open mine area, looking east (above) and north (below).

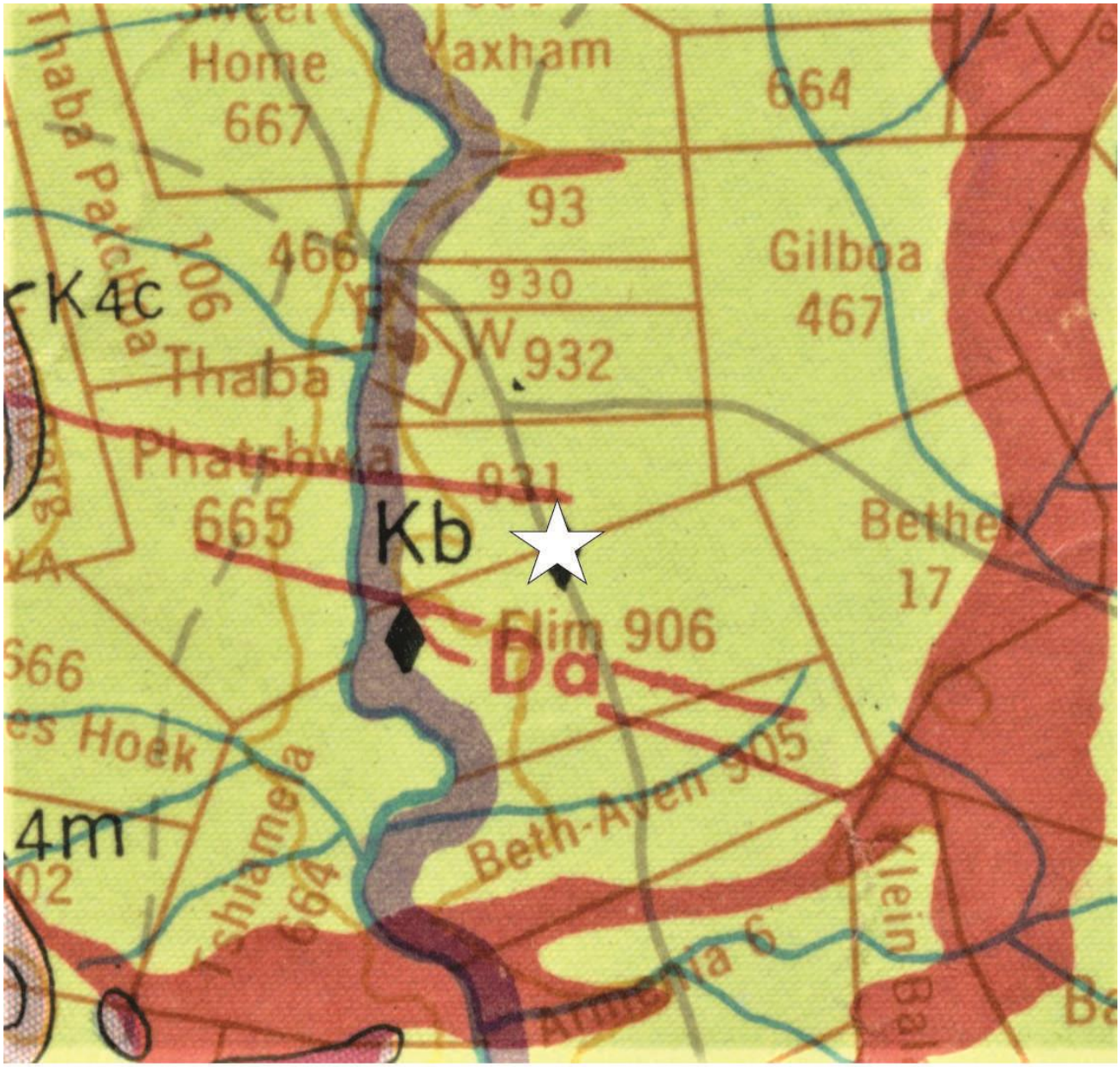
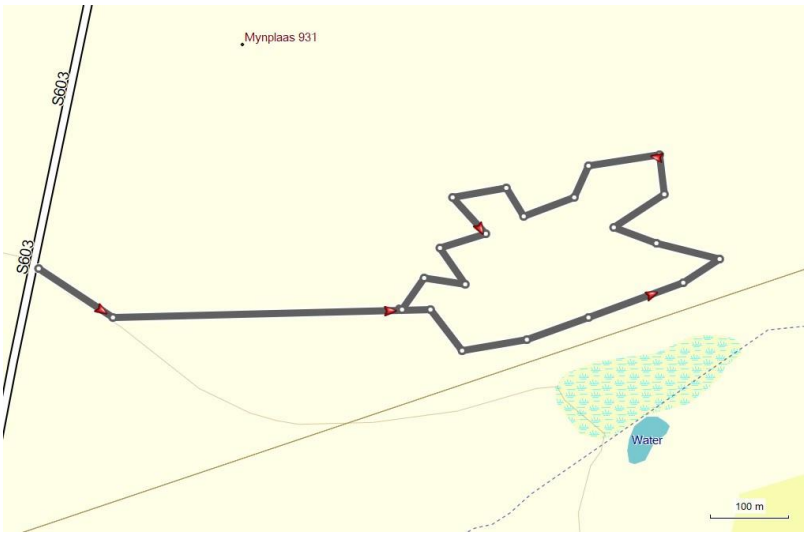


Figure 5. According to portion of 1:250 scale geological map 2926 Bloemfontein, the site (white star) is located within the outcrop area of the early Triassic Tarkastad Subgroup (Karoo Supergroup).

Figure 6. According to the SAHRIS palaeosensitivity map, the site lies within a very highly sensitive area.

Figure 7. Bluish-grey colored kimberlite rock set in a porphyritic and brecciated matrix (left & top right) and thermal stress related onion skin weathering on sedimentary rocks. Scale 1 = 10 cm.

Appendix 1: Survey Track Log



Index	Coordinates
1	S29 20 09.9 E27 08 18.3
2	S29 20 11.9 E27 08 21.6
3	S29 20 11.9 E27 08 21.6
4	S29 20 11.6 E27 08 35.5
5	S29 20 11.6 E27 08 35.5
6	S29 20 13.3 E27 08 36.9
7	S29 20 13.3 E27 08 36.9
8	S29 20 12.8 E27 08 39.8
9	S29 20 11.9 E27 08 42.5
10	S29 20 10.5 E27 08 46.7
11	S29 20 09.5 E27 08 48.3
12	S29 20 08.9 E27 08 45.5
13	S29 20 08.2 E27 08 43.6
14	S29 20 06.9 E27 08 45.8
15	S29 20 05.3 E27 08 45.6
16	S29 20 05.7 E27 08 42.5
17	S29 20 07.0 E27 08 41.9
18	S29 20 07.8 E27 08 39.6
19	S29 20 06.6 E27 08 38.9
20	S29 20 07.0 E27 08 36.5
21	S29 20 08.5 E27 08 38.0
22	S29 20 09.1 E27 08 36.0
23	S29 20 10.6 E27 08 37.1
24	S29 20 10.3 E27 08 35.3
25	S29 20 11.6 E27 08 34.3