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**REPORT ON A PHASE 1 HERITAGE IMPACT ASSESSMENT
FOR THE RHENOSTERKOP PROSPECTING RIGHTS APPLICATION
ON THE FARM RHENOSTERKOP 452JR, 24 KM NORTH-EAST OF
BRONKHORSTSPRUIT, TSHWANE EAST MUNICIPAL DISTRICT**

For:

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REPORT: APAC018/60

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September 2018

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A handwritten signature in black ink, appearing to be 'A. Pelser', written in a cursive style.

SUMMARY

APelser Archaeological Consulting (APAC) was appointed by Red Kite Environmental Solutions (Pty) Ltd to undertake a Phase 1 HIA for the Rhenosterkop Prospecting Rights Application, located on portions of the farm Rhenosterkop 452JR. The study area is located approximately 24km north-east of Bronkhorstpruit and directly east of the town Vlakfontein-A in the Tshwane East Municipal District & Bronkhorstpruit Sub-District. Six Borehole and three Trench positions had to be assessed as part of the survey.

A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites in the specific area, while a number were identified in the study area during the assessment. The report will discuss the results of the desktop and field assessment and provide recommendations on the way forward at the end of the document.

From a Cultural Heritage point of view the proposed PRA and related actions can continue, taking into consideration the mitigation measures proposed at the end of the report.

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1. INTRODUCTION

APelser Archaeological Consulting (APAC) was appointed by Red Kite Environmental Solutions (Pty) Ltd to undertake a Phase 1 HIA for the Rhenosterkop Prospecting Rights Application, located on portions of the farm Rhenosterkop 452JR. The study area is located approximately 24km north-east of Bronkhorstpruit and directly east of the town Vlakfontein-A in the Tshwane East Municipal District & Bronkhorstpruit Sub-District. Six Borehole and three Trench positions had to be assessed as part of the survey.

A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites in the specific area, while a number were identified in the study area during the assessment.

The client indicated the location and boundaries of the Project Area, and the assessment focused on this area.

2. TERMS OF REFERENCE

The Terms of Reference for the study was to:

- 1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development;*
- 2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;*
- 3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;*
- 4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;*
- 5. Review applicable legislative requirements;*

3. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

3.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts

- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The National Estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Sites of Archaeological and palaeontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial)

- a. 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;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- a. destroy, damage, alter, exhume or remove from its original position of 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 or 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, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated to) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

3.2 The National Environmental Management Act

This act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

4. METHODOLOGY

4.1 Survey of literature

A survey of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography.

4.2 Field survey

The field assessment section of the study was conducted according to generally accepted HIA practices and aimed at locating all possible objects, sites and features of heritage significance in the area of the proposed development. The location/position of all sites, features and objects was determined by means of a Global Positioning System (GPS), while detailed photographs were also taken where possible.

4.3 Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

4.4 Documentation

All sites, objects, features and structures identified are documented according to a general set of minimum standards. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

5. DESCRIPTION OF THE AREA

The study area is located on the farm Rhenosterkop 452JR, located 24km north-east of Bronkhorstspuit and directly east of the town of Vlakfontein-A. It is furthermore situated in the Tshwane East Municipal District and the sub-District of Bronkhorstspuit in Gauteng.

The topography of the study area is characterized by rolling hills and grassland, with some rocky ridges and outcrops. Parts of the area has been utilized in the past for agricultural purposes (mostly cattle), but is in the main fairly pristine with little change in the natural vegetation. Impacts on the area include farming related homesteads & structures, fencing and some dirt tracks. Dense grass cover in sections made visibility difficult, while some clumps of trees also exist. Portions of the larger study area have recently been burnt. A number of drainage lines/spruite is located in the area, but these will not be affected by the proposed prospecting rights application and associated activities.

Six proposed borehole and three trench positions related to the prospecting application had to be assessed, while the larger geographical area within which these fall were also looked at.

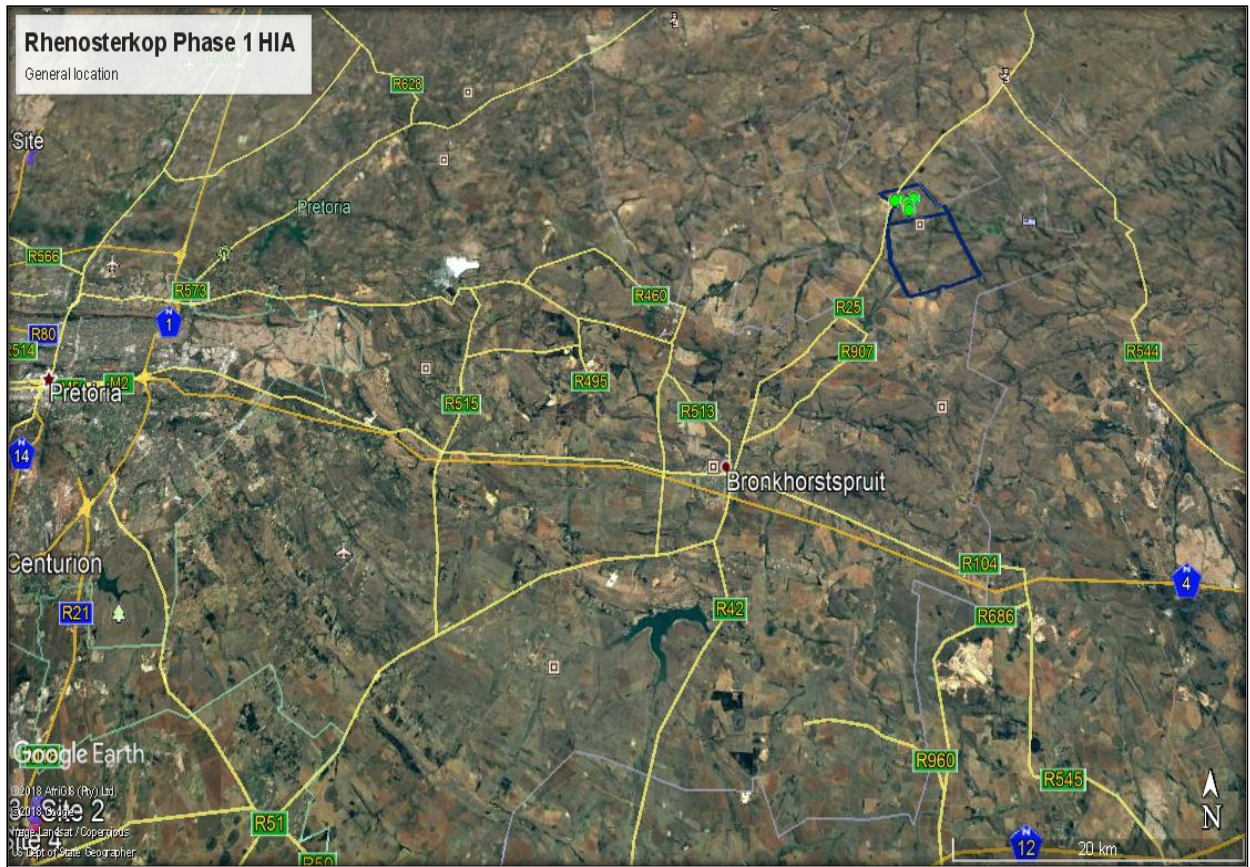


Fig.1: General location of study area north-east of Bronkhorstspuit (Google Earth 2018).



Fig.2: Closer view of study area showing positions of proposed boreholes (green dots) & trenches (red lines). Google Earth 2018.



Fig.3: View of a section of the study area close to some of the borehole & trench positions.



Fig.4: General view of a section of the study area.



Fig.5: Some sections have been burnt recently.



Fig.6: Clumps of trees occur close to some of the Borehole & trench positions.



Fig.7: A view of some drainage lines occurring in the study area.



Fig.8: Another view of the general area.



Fig.9: A view from one of the borehole locations looking north over the larger study area.



Fig.10: The location of one of the homesteads on the farm.

6. DISCUSSION

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. In South Africa the Stone Age can be divided in basically into three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago
Middle Stone Age (MSA) less than 300 000 – 20 000 years ago
Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

There are no known Stone Age sites in close proximity to the study area, although a Later Stone Age site (Fort Troje) is situated close to Cullinan to the north-west of the study area (Bergh 1999: 4; 95).

No Stone Age occurrences (stone tools) were identified during the September 2018 assessment of the study area.

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts. In South Africa it can be divided in two separate phases (Bergh 1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.
Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) indicates that a Middle Iron Age should be included. His dates, which are widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.
Middle Iron Age (MIA) 900 – 1300 A.D.
Late Iron Age (LIA) 1300 – 1840 A.D.

No Early or Middle Iron Age sites are known to occur in the study area, although a number of LIA stone walled sites do occur in the area between Pretoria and Bronkhorstspuit/Cullinan (Bergh 1999: 6-7).

Some Iron Age sites, features or objects were identified during the September 2018 assessment of the study area and will be discussed in the next section.

The historical period usually starts with the moving into an area of people that were able to read and write and record histories such as early European travellers and/or missionaries. The earliest European group to travel through the area was that of Schoon in 1836. The early travellers were followed closely by the Voortrekkers after 1840 (Bergh 1999: 13).

During the First War of Independence/Anglo-Transvaal War (1880-1881) the area did play a role with one of the major battles of this war being fought at Bronkhorstspuit on the 20th of December 1880 (Bergh 1999: 46). Similarly, during the Anglo-Boer War (1899-1902) the area played a role with a Black Concentration Camp established close to Bronkhorstspuit (Bergh 1999: 54). On the 29th of November 1900 the Battle of Rhenosterkop was fought in the area (Bergh 1999: 54), while the British apparently establishing “a permanent occupation at Rhenosterkop” (www.angloboerwar.com).

According to Wikipedia, in 1858 a group of Voortrekkers settled in the Bronkhorstspuit Creek (originally called the Kalkoenkrans rivier). In June 1897, the then Zuid-Afrikaansche Republiek (or ZAR) approved the official establishment of the town, then already known as Bronkhorstspuit by locals (www.wikipedia.co.za).

The oldest map for the farm (for Portion 0) obtained from the Chief Surveyor General’s database dates to 1887 (www.csg.dla.gov.za - Document 10G5BJ01) shows that the farm was then numbered as No.23 and was situated in the Bronkhorstspuit District and Elandsrivier Ward. It was surveyed for the then owner in September 1887. No historical sites or features are shown on this old map however.

Some recent historical remains were identified in the study area during the field assessment and will be discussed in the next section.

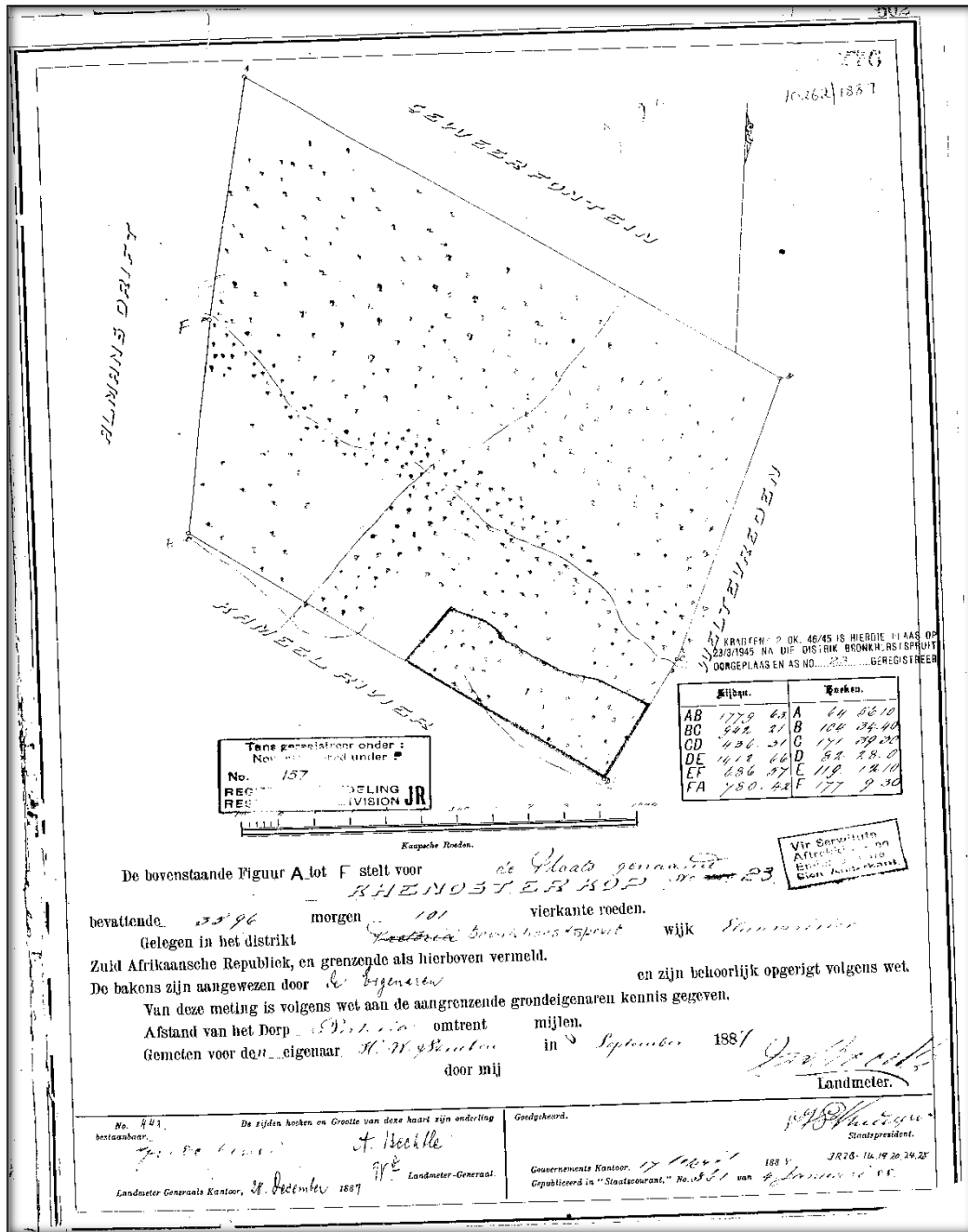


Fig.11: 1887 map of Rhenosterkop 452JR (www.csg.dla.gov.za).

Results of the September 2018 Fieldwork

A number of sites and features were identified in the area during the assessment. None of these sites will be directly impacted by the proposed borehole or trench positions currently, but should future large-scale mining operations be conducted there is a possibility that the sites will be negatively affected. Should future mining be proposed then detailed impact assessments will have to be conducted and suitable mitigation measures be carried out on these sites should they be impacted as a result.

Site 1 – Iron Age metal smelting

This site is represented by pieces of metal slag, as well as pieces of furnace clay blowpipe (tuyere). The site is located close to a clump of trees and is situated in relative close proximity to some of the borehole and trench positions proposed for prospecting activities.

It is possible that the metal smelting furnace related to these remains is located close by and although not visible on the surface would be preserved to some extent underground. Sites such as these are not known in the area and as a result are quite significant. It is recommended that the proposed prospecting rights application and related activities not impact on the site and that a buffer zone of around 50m be placed around it. Should future mining operations be proposed on the basis of the results of the prospecting it is then recommended that the site be mitigated through detailed mapping and archaeological excavations.

GPS Location: S25 36 08.50 E28 55 23.30

Cultural Significance: Medium to High.

Heritage Significance: Grade III.

Field Ratings: General protection A (IV A): Site should be mitigated before destruction (High/Medium significance)

Mitigation: See above.



Fig.12: The location of Site 1.



Fig.13: Clay blowpipe and metal slag pieces at Site 1.



Fig.14: Close-up of furnace blow-pipe fragment.

Site 2 – Broken upper grinding stone

The second site only contained a single broken upper grinding stone, located close to a clump of trees and in relative close proximity to the position of one of the proposed boreholes and prospecting trenches. No stone walling or other material remains were identified in the area. These grinding stones are normally associated with Iron Age sites, although it could also date to more recent historical times, and were used for grinding of maize on a larger lower grinder.

The site and find is not seen as significant and the Phase 1 documentation is deemed sufficient. However, should any features or cultural material be exposed during prospecting activities then a specialist should be called in to investigate and provide recommendations on the way forward.

GPS Location: S25 36 38.80 E28 55 07.90

Cultural Significance: Low.

Heritage Significance: None.

Field Ratings: General protection C (IV C): Phase 1 is seen as sufficient recording and it may be demolished (Low significance)

Mitigation: See above.



Fig.15: The broken upper grinder at Site 2.

Site 3 – Recent historical farmstead & homestead remains

This site is located in relative close proximity to two of the proposed borehole positions, but will not be directly impacted by the prospecting activities related to these features. The site consists of the remains of homesteads, a cement dam and various other features associated with this farmstead and related activities. The site is fairly large with a clear old perimeter fence and bluegum trees demarcating its boundaries. No graves or a cemetery were identified at or close to the site, but the possibility of these in the area cannot be excluded.

The age of the site has not been determined, but is likely to be less than 60 years of age. As the site will not be directly impacted upon by the prospecting application and related activities at this stage, no mitigation measures are recommended. However, should future proposed large-scale mining activities be undertaken, a detailed impact assessment will have to be conducted. This will include obtaining oral testimonies related to the site as it is likely that farm laborers used to occupy the site and might have been buried their deceased relatives close to and/or around the homesteads. At present the site should be left in situ and not be impacted by any development activities.

GPS Location: S25 36 04.00 E28 54 36.30

Cultural Significance: Medium.

Heritage Significance: Grade III.

Field Ratings: General protection B (IV B): Site should be recorded before destruction (Medium significance)

Mitigation: See above.



Fig.16: A view of Site 3 from one of the proposed Borehole positions looking north.



Fig.17: Site 3.



**Fig.18: The possible location of graves at Site 3.
No clear stone-packed features (graves) were identified however.**



Fig.19: The remains of one of the homesteads at Site 3.



Fig.20: Two lower grinding stones on Site 3.



Fig.21: A square-shape stone foundation of a structure on Site 3.



Fig.22: Remains of a clay-brick and plaster structure on Site 3.



Fig.23: Cement dam on Site 3.



Fig.24: More structural remains on Site 3.

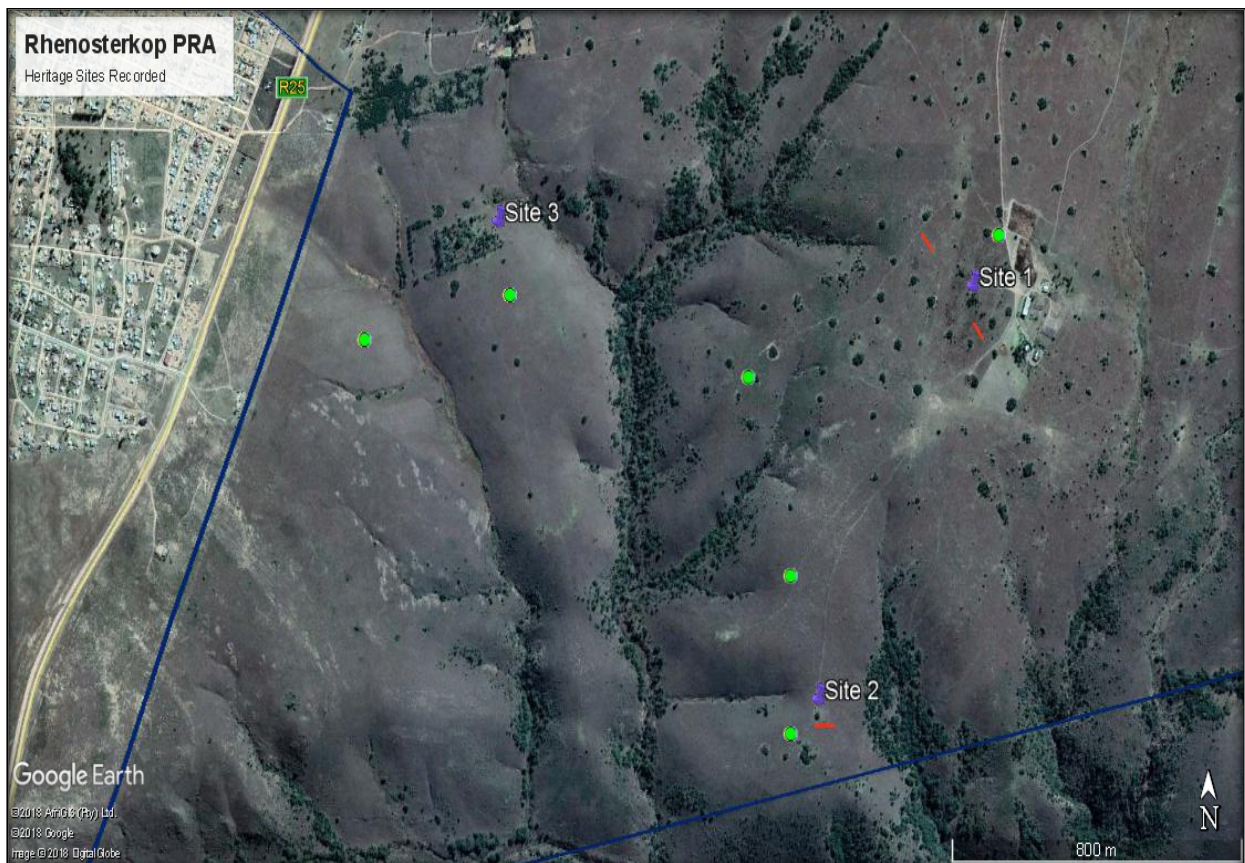


Fig.25: Aerial view of study area showing location of heritage sites recorded in relation to the proposed borehole and trench positions (Google Earth 2018).

It should be noted that although all efforts are made to cover a total area during any assessment and therefore to identify all possible sites or features of cultural (archaeological and/or historical) heritage origin and significance, that there is always the possibility of something being missed. This will include low stone-packed or unmarked graves. This aspect should be kept in mind when development work commences and if any

sites (including graves) are identified then an expert should be called in to investigate and recommend on the best way forward.

7. CONCLUSIONS AND RECOMMENDATIONS

APelser Archaeological Consulting (APAC) was appointed by Red Kite Environmental Solutions (Pty) Ltd to undertake a Phase 1 HIA for the Rhenosterkop Prospecting Rights Application, located on portions of the farm Rhenosterkop 452JR. The study area is located approximately 24km north-east of Bronkhorstpruit and directly east of the town Vlakfontein-A in the Tshwane East Municipal District & Bronkhorstpruit Sub-District. Six Borehole and three Trench positions had to be assessed as part of the survey.

A number of known cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. There are no known sites in the specific area, although a number were identified in the study area during the assessment.

Three sites were identified in the study area during the September 2018 field assessment. Site 1 is an Iron Age metal smelting site that has a high significance from an archaeological point of view and should be mitigated before destruction if future mining activities (should the prospecting application lead to this) are to directly impact on it. This will include detailed mapping and archaeological excavations.

Site 2 is a single, out of context, upper grinding stone and the Phase 1 documentation is deemed sufficient mitigation.

Site 3 is a large farmstead site with a number of homesteads and related structures located on it. The site is a prominent feature on the landscape and should not be destroyed before suitable mitigation measures have been implemented. This will include social consultation and possible mapping of the site. Currently the site will not be directly impacted by the prospecting activities, but should future mining be undertaken the recommended mitigation measures will have to be implemented.

From a Cultural Heritage point of view the proposed PRA and related actions can continue, taking into consideration the recommended mitigation measures proposed above.

Finally, it should be noted that although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward.

8. REFERENCES

General and closer view of Study Area location, as well as Sites recorded: Google Earth 2018.

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Chief Surveyor General Database – www.csg.dla.gov.za. Document 10G5BJ01.

APPENDIX A
DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B
DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:

Historic value: Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.

Aesthetic value: Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.

Scientific value: Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period

Social value: Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

Rarity: Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.

Representivity: Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Low: A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium: Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High: Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

Heritage significance:

- Grade I: Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II: Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III: Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

- i. National Grade I significance: should be managed as part of the national estate
- ii. Provincial Grade II significance: should be managed as part of the provincial estate
- iii. Local Grade IIIA: should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB: should be included in the heritage register and may be mitigated (high/medium significance)
- v. General protection A (IV A): site should be mitigated before destruction (high/medium significance)
- vi. General protection B (IV B): site should be recorded before destruction (medium significance)
- vii. General protection C (IV C): phase 1 is seen as sufficient recording and it may be demolished (low significance)

APPENDIX D
PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – Grade I and II

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

Heritage objects – e.g. Archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E
HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or Scoping Phase – Establishment of the scope of the project and terms of reference.
2. Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.
3. Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – If there is no likelihood that any sites will be impacted.
5. Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.