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**PHASE 1 HIA REPORT FOR PROPOSED PROSPECTING
ON PORTION 43 OF THE FARM EERSBEGINT 703 NEAR HOTAZEL
IN THE JOE MOROLONG LOCAL MUNICIPALITY
NORTHERN CAPE PROVINCE**

For:

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REPORT: APAC019/120

by:

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December 2019

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I hereby declare that I, Anton Johan Pelsler, am an Independent Consultant with no vested interest in the Proposed Development other than being an Appointed Heritage Specialist to undertake a Specialist Assessment for the proposed development.

Signed at Pretoria on this 1st day of December 2019

Anton Pelsler

ID Number: 711223 5283 088

A handwritten signature in black ink, appearing to read 'A. Pelsler', written in a cursive style.

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SUMMARY

A Pelsers Archaeological Consulting (APAC) was appointed by SLR Consulting (Pty) Ltd to conduct a Phase 1 HIA for Khwara Manganese (Pty) Ltd's proposed Iron Ore and Manganese prospecting on Portion 43 of the farm Eersbegint 703. The prospecting and study area is located in the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality of the Northern Cape Province. The area is situated approximately 27km north-west of the town of Hotazel.

The prospecting activities will include non-invasive and invasive activities. Non-invasive activities will comprise analyzing existing core, ground penetrating radar and hand held ground magnetic mapping. Invasive activities would comprise drilling of ten (10) prospecting boreholes on the farm.

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls, while no known sites are known for the specific study area. The assessment of Eersbegint was done at the same time as the one on Boerdraai 228, also for Khwara Manganese (**See Report APAC019/119**). Access to Eersbegint was limited at the time of the assessment, but the geographical and natural landscape of the study area is similar as the two areas lie directly adjacent to each other. Although sites similar to those on Boerdraai could not be identified and recorded as a result, the findings and resultant recommendations provided are the same. This report discusses the results of both the background research and physical assessment and provides recommendations on the way forward at the end.

From a Cultural Heritage point of view it is recommended that the proposed prospecting activities be allowed to continue once the recommended mitigation measures put forward at the end of the report have been implemented.

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1. INTRODUCTION

A Pelser Archaeological Consulting (APAC) was appointed by SLR Consulting (Pty) Ltd to conduct a Phase 1 HIA for Khwara Manganese (Pty) Ltd's proposed Iron Ore and Manganese prospecting on Portion 43 of the farm Eersbegint 703. The prospecting and study area is located in the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality of the Northern Cape Province. The area is situated approximately 27km north-west of the town of Hotazel.

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The client indicated the location and boundaries of the study area and the assessment concentrated on this portion.

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 is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed.

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 are 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 situated on Portion 43 of the farm Eersbegint 703 near Hotazel in the Magareng Local Municipality of the Northern Cape Province. The prospecting and study area is located in the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality of the Northern Cape Province.

The topography of the study area is in general fairly flat, although there are some rocky outcrops. Vegetation cover (trees, shrubs, grass) is present, but although dense in sections, visibility was relatively good in the portions that could be accessed during the assessment. Red Kalahari sands and dunes characterize large parts of the study area while a dry stream bed (Kuruman River) is found in the south-western corner of the area. Banks of calcrete outcrops, erosion dongas and river gravels are also found in this section. The farm has been used in the past mainly for agricultural purposes (livestock including cattle and sheep).

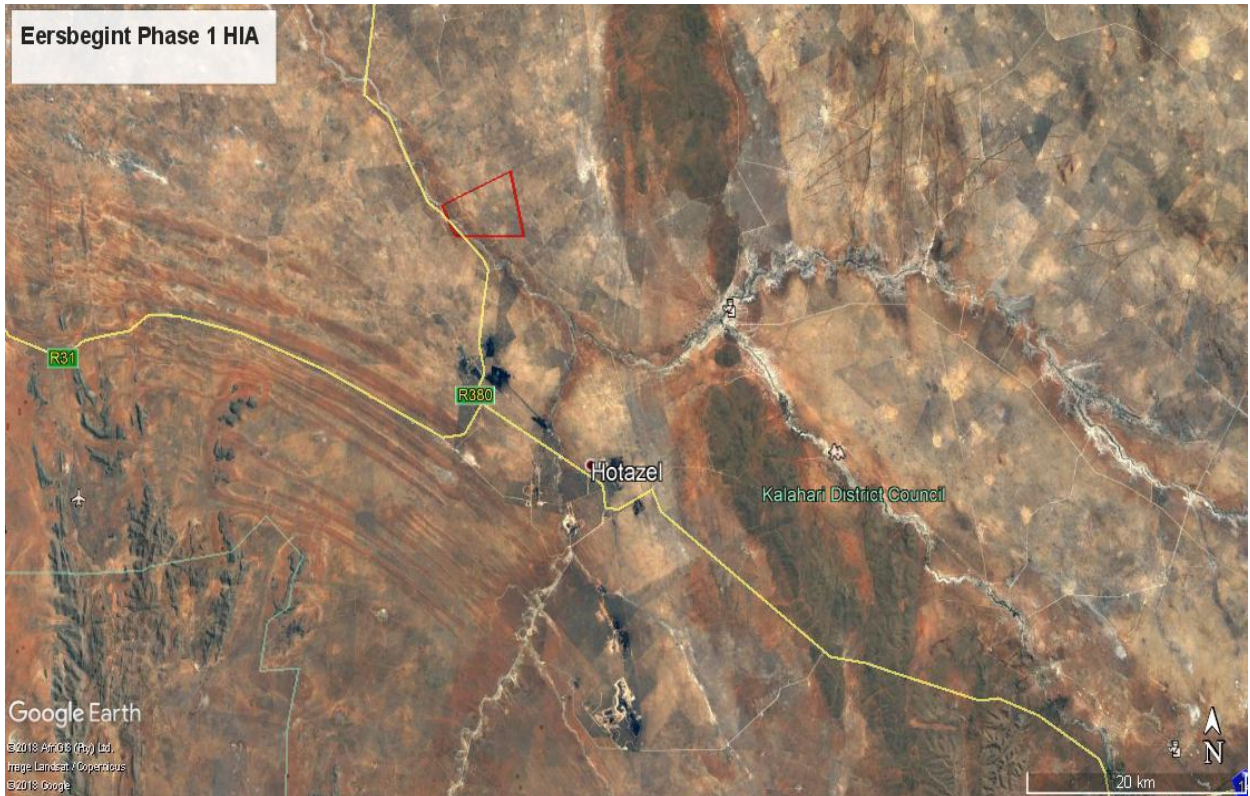


Figure 1: General view of study area location (Google Earth 2019).



Figure 2: Closer view of the study area (Google Earth 2019).



Figure 3: A view of a section of the study area.



Figure 4: A view of a section of Eersbegint from the boundary with Boerdraai.



Figure 5: A view of another section of Eersbegint. Note the streambed and red sands.



Figure 6: Another section of Eersbegint.

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).

No known Stone Age sites or artifacts are present in the study area. According to David Morris of the McGregor Museum in Kimberley the archaeology of the Northern Cape is rich and varied, covering long spans of human history. The Karoo is particularly bountiful. Some areas are richer than others, and not all sites are equally significant. The significance of sites encountered in the study area may be assessed against previous research in the region and subcontinent. The region's remoteness from research institutions accounts for a relative lack of archaeological research in the area. The area has probably been relatively marginal to human settlement for most of its history, yet it is in fact exceptionally rich in terms of Stone Age sites and rock art, as a relatively few but important studies have shown (Morris 2006).

Stone Age sites are known to occur in the larger geographical area, including the well-known Wonderwerk Cave in the Kuruman Hills, Tsantsabane, an ancient specularite working on the eastern side of Postmasburg, Doornfontein, another specularite working north of Beeshoek and a cluster of important Stone Age sites near Kathu. Additional specularite workings with associated Ceramic Later Stone Age material and older Fauresmith sites (early Middle Stone Age) are known from Lylyfeld, Demaneng, Mashwening, King, Rust & Vrede, Paling, Gloucester and Mount Huxley to the north. Rock engraving sites are known from Beeshoek and Bruce (Morris 2005: 3). Studies done by Kusel (2009) and by Pelsner & Van Vollenhoven (2011) at Black Rock and Gloria Mines near Hotazel, not far from the study area at Perth did reveal a number of Early to Later Stone Age artifacts and sites in the area. A single stone tool was identified during a 2012 site assessment on the farm Adams 328 close to UMK by the author of this report (Pelsner 2012: 17-18).

Although the Eersbegint farm/study area was not assessed in the same detail as Boerdraai due to access issues and limited time frames, it is envisaged that Stone Age sites and finds similar to those identified on Boerdraai will most likely be present on Eersbegint as well. This will be especially true for the section of the Kuruman River bed that is located in the south-western section of the study area.

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal 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) however indicates that a Middle Iron Age should be included. His dates, which now seem to be 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.

The expansion of early farmers, who, among other things, cultivated crops, raised livestock, made ceramic containers (pots), mined ore and smelted metals, occurred in this area between AD 400 and AD 1100 and brought the Early Iron Age (EIA) to South Africa. They settled in semi-permanent villages (De Jong 2010: 35).

While there is some evidence that the EIA continued into the 15th century in the South African Lowveld, on the escarpment it had ended by AD1100. The Highveld became active again from the 15th century onwards due to a gradually warmer and wetter climate. From here communities spread to other parts of the interior. This later phase, termed the Late Iron Age (LIA), was accompanied by extensive stonewalled settlements, such as the Thlaping capital Dithakong, 40 km north of Kuruman (De Jong 2010: 35-36).

Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the so-called 'first people'. Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is sometimes known as the Ceramic Late Stone Age and is represented by the Blinkklipkop specularite mine near Postmasburg and finds at the Kathu Pan (De Jong 2010: 36).

As with Boerdraai it is highly unlikely that any Iron Age sites, features or material would be present in the area.

Factors such as population expansion, increasing pressure on natural resources, the emergence of power blocs, attempts to control trade and penetration by Griquas, Korana and white communities from the south-west resulted in a period of instability in Southern Africa that began in the late 18th century and effectively ended with the settlement of white farmers in the interior. This period, known as the difaqane or Mfecane, also affected the Northern Cape Province, although at a relatively late stage compared to the rest of Southern Africa.

Here, the period of instability, beginning in the mid-1820s, was triggered by the incursion of displaced refugees associated with the Tlokwa, Fokeng, Hlakwa and Phuting tribal groups.

The difaqane coincided with the penetration of the interior of South Africa by white traders, hunters, explorers and missionaries. The first was PJ Truter's and William Somerville's journey of 1801, which reached Dithakong at Kuruman. They were followed by Cowan, Donovan, Burchell and Campbell and resulted in the establishment of a London Mission Society station near Kuruman in 1817 by James Read.

The Great Trek of the Boers from the Cape in 1836 brought large numbers of Voortrekkers up to the borders of large regions known as Bechuanaland and Griqualand West, thereby coming into conflict with many Tswana groups and also the missionaries of the London Mission Society. The conflict between Boer and Tswana communities escalated in the 1860s and 1870s when the Korana and Griqua communities became involved and later also the British government. The conflict mainly centered on land claims by various communities. For decades the western border of the Transvaal Boer republic was not fixed. Only through arbitration (the Keate Arbitration), triggered by the discovery of gold at Tati (1866) and diamonds at Hopetown (1867) was part of the western border finally determined in 1871. Ten years later, the Pretoria Convention fixed the entire western border, thereby finally excluding Bechuanaland and Griqualand West from Boer domination (De Jong 2010: 36).

The first Geologist to have surveyed the Northern Cape was Dr. A. W. Rogers of the Geological Commission of the Cape Colony in 1906. One of the features he noted was a small hill called Black Rock and reported on the presence of manganese ore at the base of the hill. In 1940 Associated Manganese Mines of South Africa acquired the manganese outcrop known as Black Rock and shortly afterwards started mining the deposit. The ore is extracted by both underground and open cast operations. Mines in the larger area (over and above UMK) include Wessels, N'Chwaning I, N'Chwaning II, Black Rock, Hotazel, Langdon, Devon, Perth, Smart, Adams, Mamatwan (largest opencast mine in the area), Middleplaats and Gloria. Gloria Mine was opened in 1978 (Kusel et.al. 2009: 3).

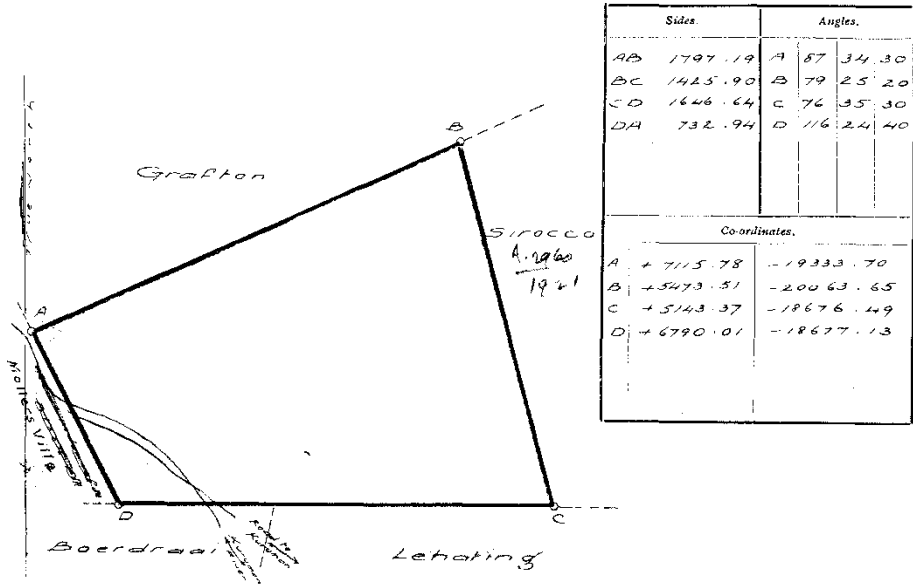
The oldest map for the farm (for Portion 43) that could be obtained from the database of the Chief Surveyor General (www.csg.dla.gov.za) dates to 1931 (CSG Document 10022969). It shows that the farm portion was then located in the Field Cornetcy No.6 Mashowing, Division of Kuruman. It was surveyed in September 1926. It also indicates that it formed part of Section A of Block E of the 2nd Railway Land Grant held by The Rhodesian Railway Ltd under Deed of Grant dated 11th of June 1928. Finally it also shows it was transferred by Deed to one Martha Louisa Bosman on the 11th of March 1931.

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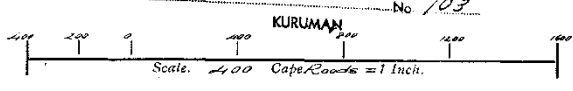
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Approved

J. J. Simons
 Surveyor General.
 22.1.1929



Portion 43 (Eersbegint)
 is portion of Portion 10 of the farm
No 703



The above figure lettered A B C D represents 3000 morgen
 - 1 - square roods - square feet of land situate in the Field-Correlcy of Mashoning No 6
 Division of Kuruman being the farm Eersbegint
 Portion of Section A of Block E of the Second Railway Land Grant held by The Rhodesia
 Railways Ltd, under Deed of Grant, dated 14th June, 1928.

Bounded as indicated above.

Surveyed and beaconed by me according to regulations

J. J. Simons
 Government Land Surveyor

Sept 1926

I certify that this diagram belongs to the Transfer issued this day in favour of

Deeds Office, } Martha Louisa Bosman 11/3/1931
 19 } No 49

V. de S. de V. Ptz. Co., Ltd., C.T.

Figure 7: A 1931 map of Portion 43 of the farm Eersbegint 703 (www.csg.dla.gov.za).

Results of the study area assessment

As with the Boerdraai 228 assessment the study area is fairly large, with large sections covered by dunes and red Kalahari sands. Due to limited access and time constraints a detailed assessment of the study area could not be undertaken. A section of the (dry) Kuruman River runs through the south-western corner of the farm. Similar to Boerdraai this river section also contains open areas and erosion dongas, calcrete outcrops and deposits & sections with concentrations and deposits of river gravels. These areas are the most likely to contain archaeological deposits and material and it is envisaged that the situation here will be similar to that of Boerdraai.

With a fairly large amount of Stone Age artifacts (either single tools or scatters of more dense tools) and sites found in the Boerdraai, the possibility that more similar finds and sites exist in the Eersbegint area is very likely, and recommended mitigation measures to negate the negative impacts of the proposed prospecting activities will be provided further on in the report. Over and above the likely Stone Age sites, recent historical sites such as unrecorded graves and possibly historical homestead remains could also be present on Eersbegint.

The significance of the Stone Age sites and finds in the Boerdraai study area is deemed to be of between Medium and High, and with Eersbegint this will be the same. With the exact positions of the proposed prospecting boreholes on Eersbegint not provided, the cumulative impacts of these activities on the possible sites present in the area would be difficult to determine currently. Any future full-scale mining in the area will also have a negative impact and this need to be mitigated as well. The following is recommended:

1. that the dry Kuruman River bed area located in the south-western corner of the study area be avoided at all costs if possible by any prospecting and future mining activities. This will include the outcrops of river gravels and banks of calcrete deposits.
2. that the exact positions of the 10 prospecting boreholes, once determined, be assessed before prospecting starts for the presence of archaeological deposits and sites. Once this has been done the cumulative impacts of the proposed prospecting can then be determined and Phase 2 mitigating measures be proposed for implementation.
3. that should possible full-scale mining commence that the footprint of the mine layout and areas of mining and related activities be assessed in detail.

What is clear from the assessment of the Boerdraai area is that there are numerous archaeological sites and deposits present in the dry Kuruman River bed sections. Any prospecting and related mining actions will negatively impact on these archaeological deposits and the Stone Age record of the area. However, without the details of the location and extent of the proposed boreholes available, the scale of impact on these resources will

not be possible to be determined. The mitigation measures proposed above will serve to determine and to minimize these impacts however.



**Figure 8: Some of the Stone Age material found at Site 1 on Boerdraai.
Similar finds are expected on Eersbegint.**



Figure 9: Closer view of the study area showing the Kuruman River bed section. Also visible are the sites recorded on Boerdraai 228 (Google Earth 2019).

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

In conclusion it is possible to say that the Khwara Manganese (Pty) Ltd's proposed Iron Ore and Manganese prospecting on Portion 43 of the farm Eersbegint 703 was conducted successfully. The prospecting and study area is located in the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality of the Northern Cape Province. The area is situated approximately 27km north-west of the town of Hotazel.

The prospecting activities will include non-invasive and invasive activities. Non-invasive activities will comprise analyzing existing core, ground penetrating radar and hand held ground magnetic mapping. Invasive activities would comprise drilling of ten (10) prospecting boreholes on the Eersbegint farm. The location of the boreholes has not been determined. The exact location of the boreholes will be decided on once the ground penetrating radar and handheld ground magnetic mapping have been completed. It is however understood

that the ore body is anticipated to be towards the south-western section of the farm Eersbegint 703 near the Kuruman River.

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls, while no known sites are known for the specific study area. The assessment of Eersbegint was done at the same time as the one on Boerdraai 228, also for Khwara Manganese (See Report APAC019/119). Access to Eersbegint was limited at the time of the assessment, but the geographical and natural landscape of the study area is similar as the two areas lie directly adjacent to each other. Although sites similar to those on Boerdraai could not be identified and recorded as a result, the findings and resultant recommendations provided are the same.

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1. It is understood that the ore body is anticipated to be towards the south-western section of the farm Eersbegint 703 near the Kuruman River. The exact locations of the ten (10) prospecting boreholes need to be provided so that these positions can be assessed in detail to determine their potential impacts on any possible sites.
2. In the event that any potential Stone Age sites cannot be avoided by the proposed prospecting activities, the need to obtain a permit for the removal and/or destruction of these sites needs to be discussed with a qualified archaeologist and obtained from SAHRA, if necessary. Linked to this is the completion of a Phase 2 HIA that needs to be undertaken by a qualified archaeologist if a permit for removal and/or destruction is required.

3. In the event of a chance find, a qualified archaeologist needs to be contacted.

What is clear from the assessment of the Boerdraai area is that there are numerous archaeological sites and deposits present. Any prospecting activities will negatively impact on these archaeological deposits and the Stone Age record of the area. However, without the details of the location and extent of the proposed boreholes available, the scale of impact on these resources will not be possible to be determined. The mitigation measures proposed above will serve to determine and to minimize these impacts however.

The subterranean nature of archaeological and/or historical 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.

Finally, from a Cultural Heritage point of view the proposed Portion 43 of Eersbent 703 prospecting should be allowed to continue taking into consideration the recommended mitigation measures provided above.

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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

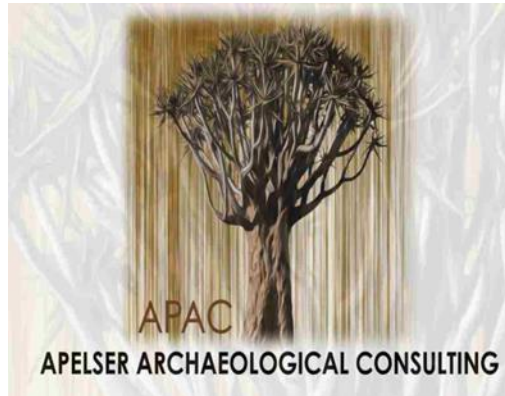
Archaeology, palaeontology and meteorites

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.



Comprehensive and Professional Solutions for all Heritage Related Matters
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**PHASE 1 HIA REPORT FOR PROPOSED PROSPECTING
ON PORTION 43 OF THE FARM EERSBEGINT 703 NEAR HOTAZEL
IN THE JOE MOROLONG LOCAL MUNICIPALITY
NORTHERN CAPE PROVINCE**

For:

***SLR CONSULTING (PTY) LTD
P.O.Box 1596
Cramerview
2060***

**REPORT: APAC019/120
Amended Version**

by:

***A.J. Pelser
Accredited member of ASAPA***

***December 2019
Amended January 2020***

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I hereby declare that I, Anton Johan Pelsler, am an Independent Consultant with no vested interest in the Proposed Development other than being an Appointed Heritage Specialist to undertake a Specialist Assessment for the proposed development.

Signed at Pretoria on this 1st day of December 2019

Anton Pelsler

ID Number: 711223 5283 088

A handwritten signature in black ink, appearing to read 'A. Pelsler', written in a cursive style.

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DISCLAIMER:

Although all efforts are made to identify all sites of cultural heritage (archaeological and historical) significance during an assessment of study areas, the nature of archaeological and historical sites are as such that it is always possible that hidden or subterranean sites, features or objects could be overlooked during the study. APELSEER Archaeological Consulting can't be held liable for such oversights or for costs incurred as a result thereof.

Clients & Developers should not continue with any development actions until SAHRA or one of its subsidiary bodies has provided final comments on this report. Submitting the report to SAHRA is the responsibility of the Client unless required of the Heritage Specialist as part of their appointment and Terms of Reference

A handwritten signature in black ink, appearing to be 'A. El' or similar, located below the disclaimer text.

SUMMARY

A Pelser Archaeological Consulting (APAC) was appointed by SLR Consulting (Pty) Ltd to conduct a Phase 1 HIA for Khwara Manganese (Pty) Ltd's proposed Iron Ore and Manganese prospecting on Portion 43 of the farm Eersbegint 703. The prospecting and study area is located in the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality of the Northern Cape Province. The area is situated approximately 27km north-west of the town of Hotazel.

The prospecting activities will include non-invasive and invasive activities. Non-invasive activities will comprise analyzing existing core, ground penetrating radar and hand held ground magnetic mapping. Invasive activities would comprise drilling of ten (10) prospecting boreholes on the farm.

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls, while no known sites are known for the specific study area. The assessment of Eersbegint was done at the same time as the one on Boerdraai 228, also for Khwara Manganese (**See Report APAC019/119**). Access to Eersbegint was limited at the time of the December 2019 assessment, but the geographical and natural landscape of the study area is similar as the two areas lie directly adjacent to each other. Although sites similar to those on Boerdraai could not be identified and recorded as a result, the findings and resultant recommendations provided in the 1st version of the Assessment Report was the same.

A physical assessment of Eersbegint was undertaken during January 2020. As with Boerdraai the focus of the fieldwork was on the Kuruman River section as this was the area where sites were expected to be found. This is also the area where it is understood the ore body is anticipated to be (towards the south-western section of the farm near the Kuruman River). The report discusses the results of both the background research and physical assessment and provides recommendations on the way forward at the end.

From a Cultural Heritage point of view it is recommended that the proposed prospecting activities be allowed to continue once the recommended mitigation measures put forward at the end of the report have been implemented.

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1. INTRODUCTION

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A physical assessment of Eersbegint was undertaken during January 2020. As with Boerdraai the focus of the fieldwork was on the Kuruman River section as this was the area where sites were expected to be found. This is also the area where it is understood the ore body is anticipated to be (towards the south-western section of the farm near the Kuruman River).

The client indicated the location and boundaries of the study area and the assessment concentrated on this portion.

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; and
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 No. 25 of 1999

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 No. 107 of 1998 (NEMA)

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.

In addition to the above, this report has been compiled considering the NEMA Appendix 6 requirements for specialist reports as indicated in the table below. For ease of reference the table below provides cross references to the report sections where these requirements have been addressed. It is important to note, that where something is not applicable this has been indicated in the table below.

Table 1: NEMA Appendix 6 Requirements

Requirements of Appendix 6 – GNR 982 EIA Regulations of 7 April 2017	Relevant section in report	Comment where not applicable.
1.(1) (a) (i) Details of the specialist who prepared the report		-
(ii) The expertise of that person to compile a specialist report including a curriculum vita	Page 2 of the report Curriculum vita is attached in Appendix F.	-
(b) A declaration that the person is independent in a form as may be specified by the competent authority		-
(c) An indication of the scope of, and the purpose for which, the report was prepared	Section 2	-
(cA) An indication of the quality and age of base data used for the specialist report	Section 4	-
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 7	-
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 2	-
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3 and Section 4	-
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternative;	Section 6	-
(g) An identification of any areas to be avoided, including buffers	Section 7	-
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Figure 30 illustrates the location of the heritage/cultural sites	The exact location of the prospecting boreholes is unknown. It follows that it is not possible to superimpose the

Requirements of Appendix 6 – GNR 982 EIA Regulations of 7 April 2017	Relevant section in report	Comment where not applicable.
		prospecting sites with the heritage/cultural sites. As far as possible, these sites will be avoided.
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 6, page 35, paragraph below Figure 31	-
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Section 6	
(k) Any mitigation measures for inclusion in the EMPr	Section 7	
(l) Any conditions for inclusion in the environmental authorisation	Section 7	
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorisation	-	No monitoring requirements specified
(n)(i) A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and	Concluding statement in Section 7	-
(n)(iA) A reasoned opinion regarding the acceptability of the proposed activity or activities; and		
(n)(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan		-
(o) A description of any consultation process that was undertaken during the course of carrying out the study	Appendix G	-
(p) A summary and copies if any comments that were received during any consultation process		
(q) Any other information requested by the competent authority.	None to date	-
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Section 3.3	-

3.3. Government notice protocols

The Department of Environmental Affairs issued protocol (Government Notice No. 648) for heritage/cultural specialist reports on 04 October 2019. This protocol makes specific requirements for site sensitivity verification and environmental assessment.

In terms of environmental assessment, the protocol no specific assessment protocol has been prescribed, the required level of assessment must be based on the findings of the Initial Site Sensitivity Verification and must comply with Appendix 6 of the Environmental Impact Assessment Regulations promulgated under sections 24(5) and 44 of the NEMA, where a specialist assessment is required. In this regard, the requirements in terms of Appendix 6 of the NEMA are outlined in Table 1 above.

The specific site sensitivity verification requirements are tabulated below.

Protocol requirement	Response
The Initial Site Sensitivity Verification must be undertaken by an environmental assessment practitioner or a registered specialist with expertise in the relevant environmental theme being considered.	The site visit was undertaken by a qualified specialist.
<p>The Initial Site Sensitivity Verification must be undertaken through the use of:</p> <ul style="list-style-type: none"> (a) A desk top analysis, using satellite imagery; and (b) A pre-liminary on-site inspection to identify if there are any discrepancies with the current use of the land and environmental status quo versus the environmental sensitivity as identified on the national web based environmental screening tool. 	A desk top analysis was undertaken followed by a site survey as discussed in Section 4 of this report. The results of the desk top analysis and site survey is discussed in Section 5 and Section 6. The environmental screening tool indicates that the archaeological and cultural heritage environmental sensitivity is high along the Kuruman River. As per Section 6 of this report, the heritage/cultural sensitivity is deemed medium to high.
<p>The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that:</p> <ul style="list-style-type: none"> (a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool; (b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and (c) is submitted together with the relevant reports prepared in accordance with the requirements of the Environmental Impact Assessment Regulations. 	

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 (indicating age of base data) 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 is determined by means of a Global Positioning System (GPS) where possible, while detail photographs are also taken where needed. An initial survey was undertaken in December 2019, with a follow up survey undertaken in January 2020. A single day on site was required during each survey exercise.

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 are 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 situated on Portion 43 of the farm Eersbegint 703 near Hotazel in the Magareng Local Municipality of the Northern Cape Province. The prospecting and study area is located in the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality of the Northern Cape Province.

The topography of the study area is in general fairly flat, although there are some rocky outcrops. Vegetation cover (trees, shrubs, grass) is present, but although dense in sections, visibility was relatively good in most portions. Red Kalahari sands and dunes characterize large parts of the study area while a dry stream bed (Kuruman River) is found in the south-western corner of the area. Banks of calcrete outcrops, erosion dongas and river gravels are also found in this section. The farm has been used in the past mainly for agricultural purposes (livestock including cattle and sheep). A large quarry in one section of the study area has also impacted on the original landscape, as well as some archaeological deposits as will be discussed further on in the document.

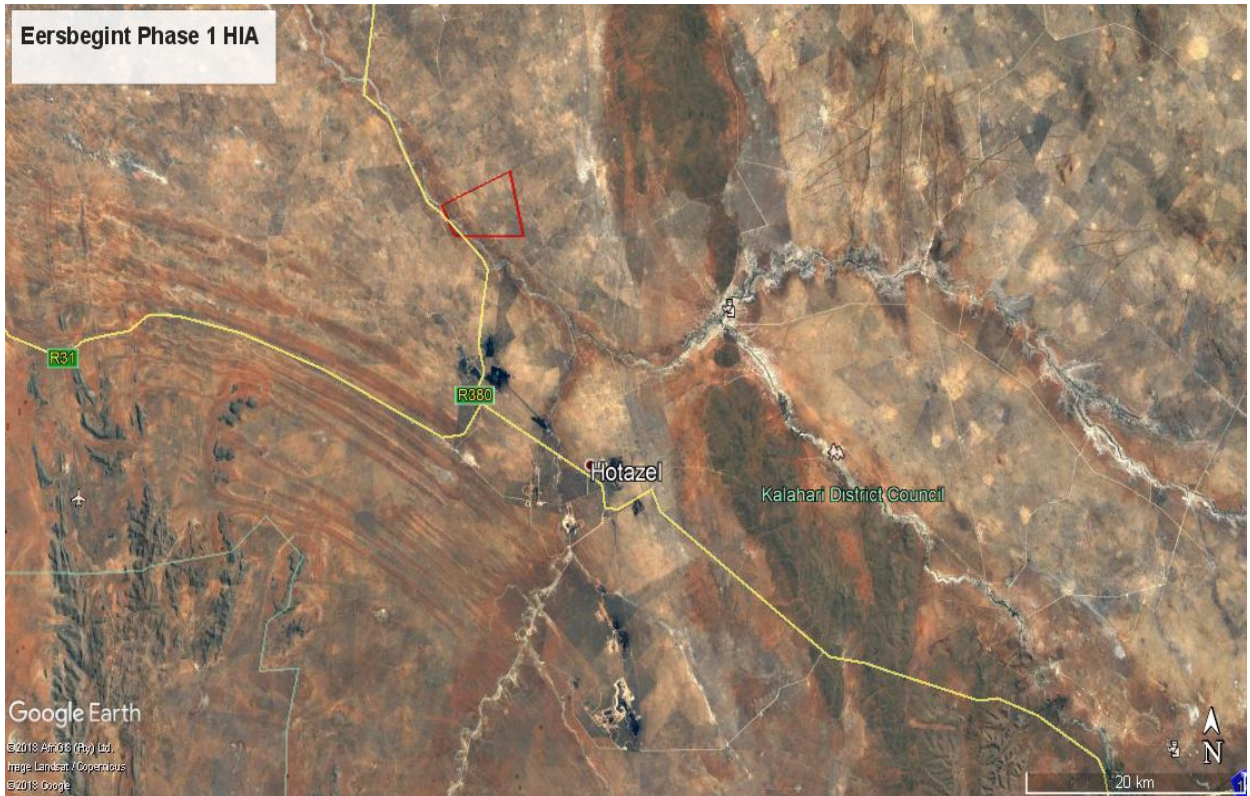


Figure 1: General view of study area location (Google Earth 2019).



Figure 2: Closer view of the study area (Google Earth 2019).



Figure 3: A view of a section of the study area.



Figure 4: A view of a section of Eersbegint from the boundary with Boerdraai.



Figure 5: A view of another section of Eersbegint. Note the streambed and red sands.



Figure 6: Another section of Eersbegint.



Figure 7: A view of the quarry in the area.



Figure 8: A view of a section of the Kuruman River on Eersbegint.



Figure 9: Another section. Note the dense vegetation and the red dunes.



Figure 10: A section of the dry river bed.



Figure 11: Erosion donga section in the study area.



Figure 12: Another view of a section of the study area close to the Kuruman River.



Figure 13: A view of a section of the red dunes in the study area.



Figure 14: View of farm worker structures and farming related activities on Eersbegint.



Figure 15: Another view of a section of the study area.

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).

No known Stone Age sites or artifacts are present in the study area. According to David Morris of the McGregor Museum in Kimberley the archaeology of the Northern Cape is rich and varied, covering long spans of human history. The Karoo is particularly bountiful. Some areas are richer than others, and not all sites are equally significant. The significance of sites encountered in the study area may be assessed against previous research in the region and subcontinent. The region's remoteness from research institutions accounts for a relative lack of archaeological research in the area. The area has probably been relatively marginal to human settlement for most of its history, yet it is in fact exceptionally rich in terms of

Stone Age sites and rock art, as a relatively few but important studies have shown (Morris 2006).

Stone Age sites are known to occur in the larger geographical area, including the well-known Wonderwerk Cave in the Kuruman Hills, Tsantsabane, an ancient specularite working on the eastern side of Postmasburg, Doornfontein, another specularite working north of Beeshoek and a cluster of important Stone Age sites near Kathu. Additional specularite workings with associated Ceramic Later Stone Age material and older Fauresmith sites (early Middle Stone Age) are known from Lylyfeld, Demaneng, Mashwening, King, Rust & Vrede, Paling, Gloucester and Mount Huxley to the north. Rock engraving sites are known from Beeshoek and Bruce (Morris 2005: 3). Studies done by Kusel (2009) and by Pelser & Van Vollenhoven (2011) at Black Rock and Gloria Mines near Hotazel, not far from the study area at Perth did reveal a number of Early to Later Stone Age artifacts and sites in the area. A single stone tool was identified during a 2012 site assessment on the farm Adams 328 close to UMK by the author of this report (Pelser 2012: 17-18).

A fairly large number of Stone Age sites and material were recorded during the January 2020 assessment of the study area, especially in and close to the Kuruman River bed. This is similar to what was found on the neighboring farm Boerdraai.

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal 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) however indicates that a Middle Iron Age should be included. His dates, which now seem to be 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.

The expansion of early farmers, who, among other things, cultivated crops, raised livestock, made ceramic containers (pots), mined ore and smelted metals, occurred in this area between AD 400 and AD 1100 and brought the Early Iron Age (EIA) to South Africa. They settled in semi-permanent villages (De Jong 2010: 35).

While there is some evidence that the EIA continued into the 15th century in the South African Lowveld, on the escarpment it had ended by AD1100. The Highveld became active again from the 15th century onwards due to a gradually warmer and wetter climate. From here communities spread to other parts of the interior. This later phase, termed the Late Iron Age (LIA), was accompanied by extensive stonewalled settlements, such as the Thlaping capital Dithakong, 40 km north of Kuruman (De Jong 2010: 35-36).

Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the so-called 'first people'. Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is sometimes known as the Ceramic Late Stone Age and is represented by the Blinkklipkop specularite mine near Postmasburg and finds at the Kathu Pan (De Jong 2010: 36).

A single piece of undecorated pottery was found during the assessment in the study area. The age and origin of this piece of pottery is unknown, but it could relate to the Ceramic Late Stone Age as indicated above. A more recent modern origin can however not be excluded.

Factors such as population expansion, increasing pressure on natural resources, the emergence of power blocs, attempts to control trade and penetration by Griquas, Korana and white communities from the south-west resulted in a period of instability in Southern Africa that began in the late 18th century and effectively ended with the settlement of white farmers in the interior. This period, known as the difaqane or Mfecane, also affected the Northern Cape Province, although at a relatively late stage compared to the rest of Southern Africa.

Here, the period of instability, beginning in the mid-1820s, was triggered by the incursion of displaced refugees associated with the Tlokwa, Fokeng, Hlakwa and Phuting tribal groups. The difaqane coincided with the penetration of the interior of South Africa by white traders, hunters, explorers and missionaries. The first was PJ Truter's and William Somerville's journey of 1801, which reached Dithakong at Kuruman. They were followed by Cowan, Donovan, Burchell and Campbell and resulted in the establishment of a London Mission Society station near Kuruman in 1817 by James Read.

The Great Trek of the Boers from the Cape in 1836 brought large numbers of Voortrekkers up to the borders of large regions known as Bechuanaland and Griqualand West, thereby coming into conflict with many Tswana groups and also the missionaries of the London Mission Society. The conflict between Boer and Tswana communities escalated in the 1860s and 1870s when the Korana and Griqua communities became involved and later also the British government. The conflict mainly centered on land claims by various communities. For decades the western border of the Transvaal Boer republic was not fixed. Only through arbitration (the Keate Arbitration), triggered by the discovery of gold at Tati (1866) and diamonds at Hopetown (1867) was part of the western border finally determined in 1871. Ten years later, the Pretoria Convention fixed the entire western border, thereby finally excluding Bechuanaland and Griqualand West from Boer domination (De Jong 2010: 36).

The first Geologist to have surveyed the Northern Cape was Dr. A. W. Rogers of the Geological Commission of the Cape Colony in 1906. One of the features he noted was a small hill called Black Rock and reported on the presence of manganese ore at the base of the hill. In 1940 Associated Manganese Mines of South Africa acquired the manganese outcrop known as Black Rock and shortly afterwards started mining the deposit. The ore is extracted by both underground and open cast operations. Mines in the larger area (over and

above UMK) include Wessels, N'Chwaning I, N'Chwaning II, Black Rock, Hotazel, Langdon, Devon, Perth, Smart, Adams, Mamatwan(largest opencast mine in the area), Middleplaats and Gloria. Gloria Mine was opened in 1978 (Kusel et.al. 2009: 3).

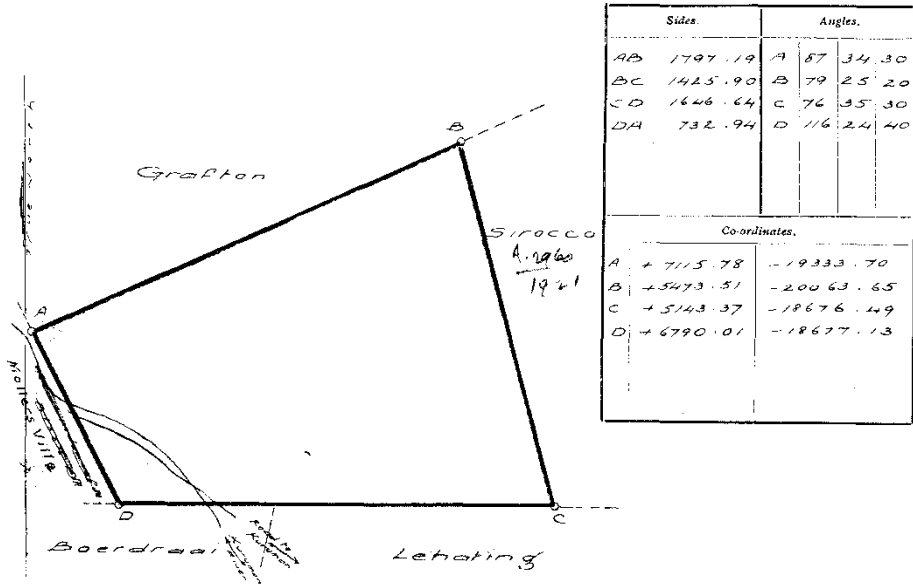
The oldest map for the farm (for Portion 43) that could be obtained from the database of the Chief Surveyor General (www.csg.dla.gov.za) dates to 1931 (CSG Document 10022969). It shows that the farm portion was then located in the Field Cornetcy No.6 Mashowing, Division of Kuruman. It was surveyed in September 1926. It also indicates that it formed part of Section A of Block E of the 2nd Railway Land Grant held by The Rhodesian Railway Ltd under Deed of Grant dated 11th of June 1928. Finally it also shows it was transferred by Deed to one Martha Louisa Bosman on the 11th of March 1931.

F No. A2961¹⁹

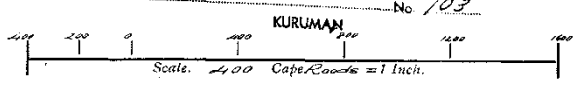
K. 68

Approved

J. J. Simons
 Surveyor General.
 22.1.1929



Portion 43 (Eersbegint)
 the portion of Portion 10 of the farms
 No 703



The above figure lettered A B C D represents 3000 morgen
 - 1 - square rods - square feet of land situate in the Field-Correlty of Mashoning N^o 6
 Division of Kuruman being the farm Eersbegint
 Portion of Section A of Block E of the Second Railway Land Grant held by The Rhodesia
 Railways Ltd, under Deed of Grant, dated 11 June, 1928.

Bounded as indicated above.

Surveyed and beaconed by me according to regulations

J. J. Simons
 Government Land Surveyor

Sept 1926

I certify that this diagram belongs to the Transfer issued this day in favour of

Deeds Office, }
 19 } *Matthe Kousa Bosman 11/3/1931*
 N^o 49

V. de S. de V. Piz. Co., Ltd., G.T.

Figure 16: A 1931 map of Portion 43 of the farm Eersbegint 703 (www.csg.dla.gov.za).

Results of the study area assessment

As with the Boerdraai 228 assessment the study area is fairly large, with large sections covered by dunes and red Kalahari sands. A section of the (dry) Kuruman River runs through the south-western corner of the farm. This river section also contains open areas and erosion dongas, calcrete outcrops and deposits & sections with concentrations and deposits of river gravels. These areas were the most likely to contain archaeological deposits and material.

A fairly large amount of Stone Age artifacts (either single tools or scatters of more dense tools) and sites were found in the area and recorded. The possibility that more similar finds and sites exist in the area is very likely, and recommended mitigation measures to negate the negative impacts of the proposed prospecting activities will be provided further on in the report.

Sites 1–16: Stone Age

Although 16 sites and areas with material were physically recorded, there are likely many more sites and material scattered all over the area of the dry Kuruman River bed and the associated erosion dongas and calcrete outcrops. Also, some of these sites are eroding out from under the overlying red (Aeolian) Kalahari sands covering large parts of the area. It is therefore expected that many sites and finds are currently invisible to the naked eye, and that suitable mitigation measurements will have to be implemented before and when the proposed prospecting activities commence.

The significance of the Stone Age sites and finds in the Eersbegint study area is deemed to be of between Medium and High. With the exact positions of the proposed prospecting boreholes on Eersbegint not provided, the cumulative impacts of these activities on the possible sites present in the area would be difficult to determine currently. The following is recommended:

1. that the dry Kuruman River bed area located in the south-western corner of the study area be avoided at all costs if possible by any prospecting activities. This will include the outcrops of river gravels and banks of calcrete deposits.
2. that the exact positions of the 10 prospecting boreholes, once determined, be assessed before prospecting starts for the presence of archaeological deposits and sites. Once this has been done the cumulative impacts of the proposed prospecting can then be determined and Phase 2 mitigating measures be proposed for implementation.

What is clear from the assessment is that there are numerous archaeological sites and deposits present in the dry Kuruman River bed sections. Any prospecting actions will negatively impact on these archaeological deposits and the Stone Age record of the area. However, without the details of the location and extent of the proposed boreholes available, the scale of impact on these resources will not be possible to be determined. The

mitigation measures proposed above will serve to determine and to minimize these impacts however.

Most of the sites found are located in and around the dry Kuruman River bed section on the farm, similar to those found on Boerdraai. The sites contain scatters of material of varying density, including flake-tools such as scrapers, broken blades, points and waste material. Some cores and core tools were also observed. The Stone Age tools date to the Middle and Later Stone Ages mostly.

A few of the sites or finds are found in and around the large quarry in the area, with some evidence of intact archaeological deposits visible in the stratigraphy of the quarry. "In situ" tools are visible below the red sands just above the underlying calcrete layers which formed the focus of the quarrying. It is therefore likely that similar in situ deposits could be present in the area and it is therefore recommended that once the prospecting trenches and boreholes are finalized that these locations be assessed in detail to provide a way forward in terms of mitigation measures. A single undecorated piece of pottery was also found in the disturbed quarry area and although it could have a more recent origin it is possible that it belongs to the so-called Ceramic Late Stone Age.

Site 16 is represented by a single possibly Earlier Stone Age chopper. This find is evidence that the area might have been utilized during the whole time-frame of the Stone Age (Early to Later) and that the archaeological record here could span between 2 million and 2000 years ago. A possible Acheul handaxe was also recorded on Boerdraai during the December 2019 assessment, strengthening this possibility.

GPS Location of Sites: S27 01 35.90 E22 49 50.30 (**Site 1**); S27 01 37.20 E22 49 58.80 (**Site 2**) S27 01 38.90 E22 50 00.20 (**Site 3**); S27 01 40.60 E22 50 01.60 (**Site 4**); S27 01 48.60 E22 50 07.30 (**Site 5**); S27 01 51.40 E22 50 10.40 (**Site 6**); S27 01 57.80 E22 50 08.70 (**Site 7**); S27 01 56.00 E22 50 07.20 (**Site 8**); S27 01 53.50 E22 50 04.20 (**Site 9**); S27 01 40.30 E22 49 52.90 (**Site 10 – includes pottery**); S27 01 38.60 E22 49 50.70 (**Site 11 - quarry**); S27 01 33.30 E22 49 47.50 (**Site 12**); S27 01 29.90 E22 49 48.80 (**Site 13**); S27 01 28.50 E22 49 47.10 (**Site 14**); S27 01 24.40 E22 49 40.70 (**Site 15**); S27 01 28.20 E22 49 43.40 (**Site 16**)

Cultural Significance: Medium to High

Heritage Significance: Grade III: Other heritage resources of local importance and therefore worthy of conservation.

Field Ratings: Local Grade IIIB: Should be included in a Heritage register and may be mitigated (High/Medium significance).

Mitigation: See Above



Figure 17: Some of the Stone Age tools in the quarry area (Site 1).



Figure 18: Calcrete outcrop close to the quarry (Site 1). Stone tools are scattered all over this and similar outcrops in the study area.



Figure 19: Site 2 artifacts.



Figure 20: Core, flake and hammer stone from Site 4.



Figure 21: Some of the stone tools from Site 9.



Figure 22: The fragment of undecorated pottery from Site 10 close to the quarry area.



Figure 23: Another view of the quarry area.



Figure 24: A view of the quarry stratigraphy. The Present Surface Layer (PSL) on top of older red Aeolian sands overlying the calcretes. Stone Age material is found on the top surface while Stone Age artifacts are also found just below the red sands on top of the calcretes.



Figure 25: Some stone tools are visible just below the red sand layer on top of the calcrete layer (Site 11).



Figure 26: More stone tools are visible in this section of the quarry (Site 11).



Figure 27: Stone Age material from Site 12.



Figure 28: Site 14 material.



Figure 29: Earlier Stone Age chopper (Site 16).



Figure 30: Eersbegint Sites identified (Google Earth 2020).

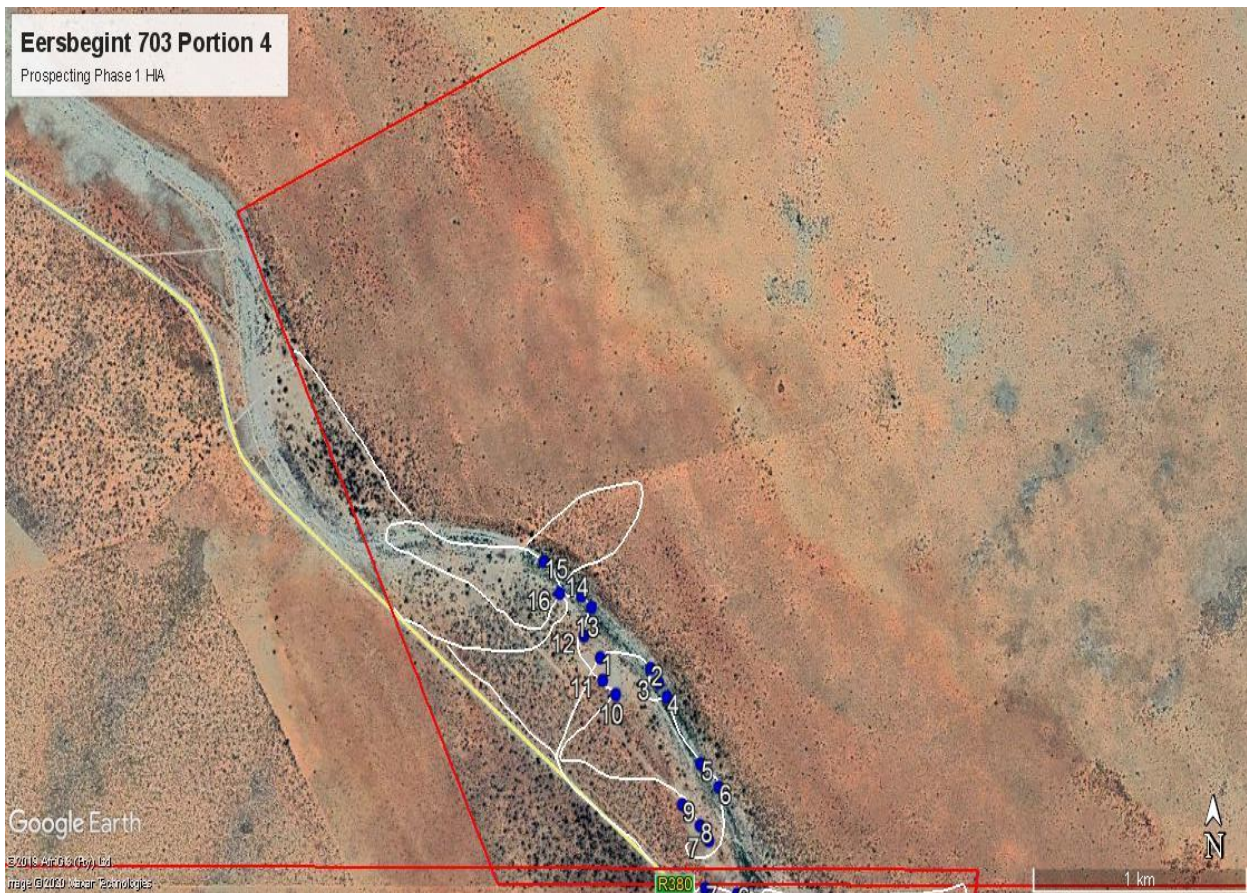


Figure 31: Eersbegint Sites and Tracks followed during the assessment (Google Earth 2020).

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

In conclusion it is possible to say that the Khwara Manganese (Pty) Ltd's proposed Iron Ore and Manganese prospecting on Portion 43 of the farm Eersbegint 703 was conducted successfully. The prospecting and study area is located in the Joe Morolong Local Municipality, John Taolo Gaetsewe District Municipality of the Northern Cape Province. The area is situated approximately 27km north-west of the town of Hotazel.

The prospecting activities will include non-invasive and invasive activities. Non-invasive activities will comprise analyzing existing core, ground penetrating radar and hand held ground magnetic mapping. Invasive activities would comprise drilling of ten (10) prospecting

boreholes on the Eersbegint farm. The location of the boreholes has not been determined. The exact location of the boreholes will be decided on once the ground penetrating radar and handheld ground magnetic mapping have been completed. It is however understood that the ore body is anticipated to be towards the south-western section of the farm Eersbegint 703 near the Kuruman River.

Background research indicates that there are some cultural heritage sites and features in the larger geographical area within which the study area falls, while no known sites are known for the specific study area. The assessment of Eersbegint was done at the same time as the one on Boerdraai 228, also for Khwara Manganese (**See Report APAC019/119**). Access to Eersbegint was limited at the time of the December 2019 assessment, but the geographical and natural landscape of the study area is similar as the two areas lie directly adjacent to each other. Although sites similar to those on Boerdraai could not be identified and recorded as a result, the findings and resultant recommendations provided in the 1st version of the Assessment Report was the same.

A physical assessment of Eersbegint was undertaken during January 2020. As with Boerdraai the focus of the fieldwork was on the Kuruman River section as this was the area where sites were expected to be found. This is also the area where it is understood the ore body is anticipated to be (towards the south-western section of the farm near the Kuruman River).

As with the Boerdraai 228 assessment the study area is fairly large, with large sections covered by dunes and red Kalahari sands. A section of the (dry) Kuruman River runs through the south-western corner of the farm. This river section also contains open areas and erosion dongas, calcrete outcrops and deposits & sections with concentrations and deposits of river gravels. These areas were the most likely to contain archaeological deposits and material.

A fairly large amount of Stone Age artifacts (either single tools or scatters of more dense tools) and sites were found in the area and recorded. The possibility that more similar finds and sites exist in the area is very likely, and recommended mitigation measures to negate the negative impacts of the proposed prospecting activities will be provided further on in the report.

Although 16 sites and areas with material were physically recorded, there are likely many more sites and material scattered all over the area of the dry Kuruman River bed and the associated erosion dongas and calcrete outcrops. Also, some of these sites are eroding out from under the overlying red (Aeolian) Kalahari sands covering large parts of the area. It is therefore expected that many sites and finds are currently invisible to the naked eye, and that suitable mitigation measurements will have to be implemented before and when the proposed prospecting activities commence.

The significance of the Stone Age sites and finds in the Eersbegint study area is deemed to be of between Medium and High. With the exact positions of the proposed prospecting boreholes on Eersbegint not provided, the cumulative impacts of these activities on the

possible sites present in the area would be difficult to determine currently. The following is recommended:

1. that the dry Kuruman River bed area located in the south-western corner of the study area be avoided at all costs if possible by any prospecting activities. This will include the outcrops of river gravels and banks of calcrete deposits.
2. that the exact positions of the 10 prospecting boreholes, once determined, be assessed before prospecting starts for the presence of archaeological deposits and sites. Once this has been done the cumulative impacts of the proposed prospecting can then be determined and Phase 2 mitigating measures be proposed for implementation.

TABLE Environmental Impact Assessment Stone Age Sites

Intensity	H: Prominent change, disturbance or degradation. Associated with real and substantial consequences. Targets, limits and thresholds of concern regularly exceeded. Will definitely require intervention. Regular complaints can be expected when the impact takes place.
Duration	VH: Very long, permanent, +20 years (Irreversible. Beyond closure)
Extent	H: Local area, extending far beyond site boundary.
Consequence	Very High
Significance	High: It must have an influence on the decision. Substantial mitigation will be required.

What is clear from the assessment is that there are numerous archaeological sites and deposits present in the dry Kuruman River bed sections. Any prospecting actions will negatively impact on these archaeological deposits and the Stone Age record of the area. However, without the details of the location and extent of the proposed boreholes available, the scale of impact on these resources will not be possible to be determined. The mitigation measures proposed above will serve to determine and to minimize these impacts however.

Most of the sites found are located in and around the dry Kuruman River bed section on the farm, similar to those found on Boerdraai. The sites contain scatters of material of varying density, including flake-tools such as scrapers, broken blades, points and waste material. Some cores and core tools were also observed. The Stone Age tools date to the Middle and Later Stone Ages mostly.

A few of the sites or finds are found in and around the large quarry in the area, with some evidence of intact archaeological deposits visible in the stratigraphy of the quarry. "In situ" tools are visible below the red sands just above the underlying calcrete layers which formed the focus of the quarrying. It is therefore likely that similar in situ deposits could be present in the area and it is therefore recommended that once the prospecting trenches and

boreholes are finalized that these locations be assessed in detail to provide a way forward in terms of mitigation measures. A single undecorated piece of pottery was also found in the disturbed quarry area and although it could have a more recent origin it is possible that it belongs to the so-called Ceramic Late Stone Age.

Site 16 is represented by a single possibly Earlier Stone Age chopper. This find is evidence that the area might have been utilized during the whole time-frame of the Stone Age (Early to Later) and that the archaeological record here could span between 2 million and 2000 years ago. A possible Acheul handaxe was also recorded on Boerdraai during the December 2019 assessment, strengthening this possibility.

The subterranean nature of archaeological and/or historical 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.

Finally, from a Cultural Heritage point of view the proposed Portion 43 of Eersbent 703 prospecting should be allowed to continue taking into consideration the recommended mitigation measures provided above.

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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.

APPENDIX F: CURRICULUM VITAE

Mr. A.J.Pelser

Anton Johan Pelser
Born: 23 December 1971
Divorced, three children
Bilingual

Academic Qualifications

BA (UNISA) 1995
BA (HONS) Archaeology WITS 1997
MA Archaeology WITS 2003

Employment History

1991 – 30 September 2006

National Cultural History Museum.

February 1991 to October 1994: Assistant in Collections Management Department.

1994 to 1998: Assistant Museum Scientist in the Research Department (Archaeology).

1998 to September 2006: Museum Scientist (Researcher: Archaeology) in the same department. Was the Curator of the Archaeology Collection at the Museum during this period.

Anton resigned in September 2006 to conduct Cultural Heritage Consultancy work and research on a full-time basis.

Publications

Mr. Pelser has published more than 30 articles in scientific and popular journals on archaeology and history, and has also been the author and co-author of nearly 900 unpublished reports on Heritage Impact Assessments and archaeological work. Anton contributed a chapter on Archaeology in a book on the geology and history of the Vredefort Dome, compiled by the Geology Department of WITS University. This book was published and launched in conjunction with the proclamation of the Dome as the newest SA World Heritage Site during July/August 2005.

A complete list of publications and reports can be supplied.

References

Dr. Johnny van Schalkwyk – 076 790 6777

Prof. Marlize Lombard – UJ Anthropology and Development Studies – (011) 559 2859

CRM Accreditations (Association of Southern African Professional Archaeologists)

Principal Investigator for graves
Principal Investigator for Iron Age and Colonial Period Archaeology
Field Director for Stone Age

Professional Member of ASAPA (Association of Southern African Professional Archaeologists)
Registered at Amafa (Kwa-Zulu Natal Heritage Authority) as CRM Practitioner

APPENDIX G: PUBLIC CONSULTATION

SLR Consulting (South Africa) (Pty) Ltd, was appointed by Khwara to undertake the environmental assessment process, including public participation, for the proposed project. As part of the public participation process, interim comments (CASE ID: 14610) were received from the South African Heritage Resources Agency on 07 January 2020. The interim comments requested that a track-log of the survey conducted as part of the study be submitted in a revised report. To address this comment, a track-log map has been included in this revised report and is illustrated in Figure 30.

**Palaeontological Impact Assessment for the proposed
Prospecting Rights application by Khwara Manangese
(Pty) Ltd on Farm Eersbegint 703, northeast of
Hotazel, Northern Cape Province**

Desktop Study

For

SLR

29 October 2019

Prof Marion Bamford

Palaeobotanist

P Bag 652, WITS 2050

Johannesburg, South Africa

Marion.bamford@wits.ac.za

Expertise of Specialist

The Palaeontologist Consultant is: Prof Marion Bamford
Qualifications: PhD (Wits Univ, 1990); FRSSAf, ASSAf
Experience: 30 years research; 22 years PIA studies

Declaration of Independence

This report has been compiled by Professor Marion Bamford, of the University of the Witwatersrand, sub-contracted by SLR Consulting, Johannesburg, South Africa. The views expressed in this report are entirely those of the author and no other interest was displayed during the decision making process for the Project.

Specialist: Prof Marion Bamford

Signature: 

Executive Summary

A palaeontological Impact Assessment was requested for the proposed prospecting rights application and drilling of ten cores on Farm Eersbegint 703, To comply with the South African Heritage Resources Agency (SAHRA) in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA), a desktop Palaeontological Impact Assessment (PIA) was completed for the proposed project.

Khwara Manganese (Pty) Ltd “Khwara” proposes to conduct prospecting activities for Iron Ore and Manganese in respect of Portion 43 (Eersbegint) of Farm 703 Black Rock in the Joe Morolong Local Municipality, located in the John Taolo Gaetsewe District Municipality, Northern Cape Province (see attached figures). The prospecting activities will include non-invasive and invasive activities. Non-invasive activities will comprise analysing existing core, ground penetrating radar and hand held ground magnetic mapping. Invasive activities would comprise drilling of ten prospecting boreholes on the farm. The property is 27km North West of Hotazel.

The proposed site lies on the Quaternary aged Kalahari Group Aeolian sands that are very unlikely to preserve fossils because they are windblown (Aeolian) sands. The northeastern part of the farm lies on Dwyka tillites and shales however only Dwyka mustones are known to preserve any fossils. Beneath the sands are likely to be the non-fossiliferous Hotazel Formation manganese and banded iron Formation deposits. Nonetheless, a Fossil Chance Find Protocol should be added to the EMPr. Based on this information it is recommended that no palaeontological site visit is required and only if the geologist or responsible person on site finds potential fossils should a palaeontologist be asked to assessed their scientific value.

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1. Background

Khwara Manganese (Pty) Ltd “Khwara” proposes to conduct prospecting activities for Iron Ore and Manganese in respect of Portion 43 (Eersbegint) of Farm 703 Black Rock in the Joe Morolong Local Municipality, located in the John Taolo Gaetsewe District Municipality, Northern Cape Province (see attached figures). The prospecting activities will include non-invasive and invasive activities. Non-invasive activities will comprise analysing existing core, ground penetrating radar and hand held ground magnetic mapping. Invasive activities would comprise drilling of ten prospecting boreholes on the farm. The property is 27km North West of Hotazel.

A Palaeontological Impact Assessment was completed for the Eersbegint 703 Prospecting Rights Application in order to comply with the South African Heritage Resources Agency (SAHRA) in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA), and is reported herein.

Table 1: Specialist report requirements in terms of Appendix 6 of the EIA Regulations (2017)

	A specialist report prepared in terms of the Environmental Impact Regulations of 2017 must contain:	Relevant section in report
ai	Details of the specialist who prepared the report	Appendix B
aii	The expertise of that person to compile a specialist report including a curriculum vitae	Appendix B
b	A declaration that the person is independent in a form as may be specified by the competent authority	Page 1
c	An indication of the scope of, and the purpose for which, the report was prepared	Section 1
ci	An indication of the quality and age of the base data used for the specialist report: SAHRIS palaeosensitivity map accessed – date of this report	Yes
cii	A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	Section 5
d	The date and season of the site investigation and the relevance of the season to the outcome of the assessment	N/A
e	A description of the methodology adopted in preparing the report or carrying out the specialised process	Section 2
f	The specific identified sensitivity of the site related to the activity and its associated structures and infrastructure	Section 4
g	An identification of any areas to be avoided, including buffers	N/A
h	A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	N/A

i	A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 5
j	A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Section 4
k	Any mitigation measures for inclusion in the EMPr	Appendix A
l	Any conditions for inclusion in the environmental authorisation	N/A
m	Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Appendix A
ni	A reasoned opinion as to whether the proposed activity or portions thereof should be authorised	N/A
nii	If the opinion is that the proposed activity or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	N/A
o	A description of any consultation process that was undertaken during the course of carrying out the study	N/A
p	A summary and copies if any comments that were received during any consultation process	N/A
q	Any other information requested by the competent authority.	N/A

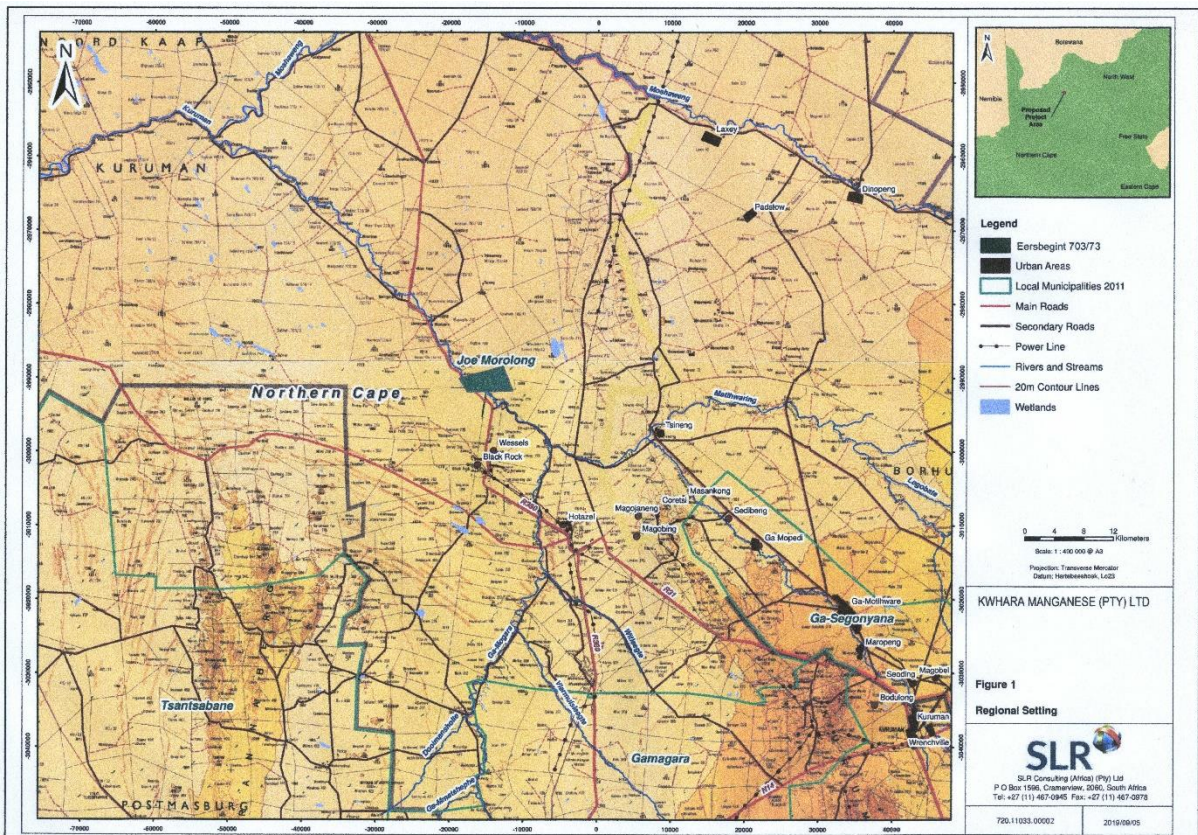


Figure 1: Google Earth map of the proposed prospecting rights project on Farm Eersbegint 703, northeast of Hotazel with the sections shown in dark green.

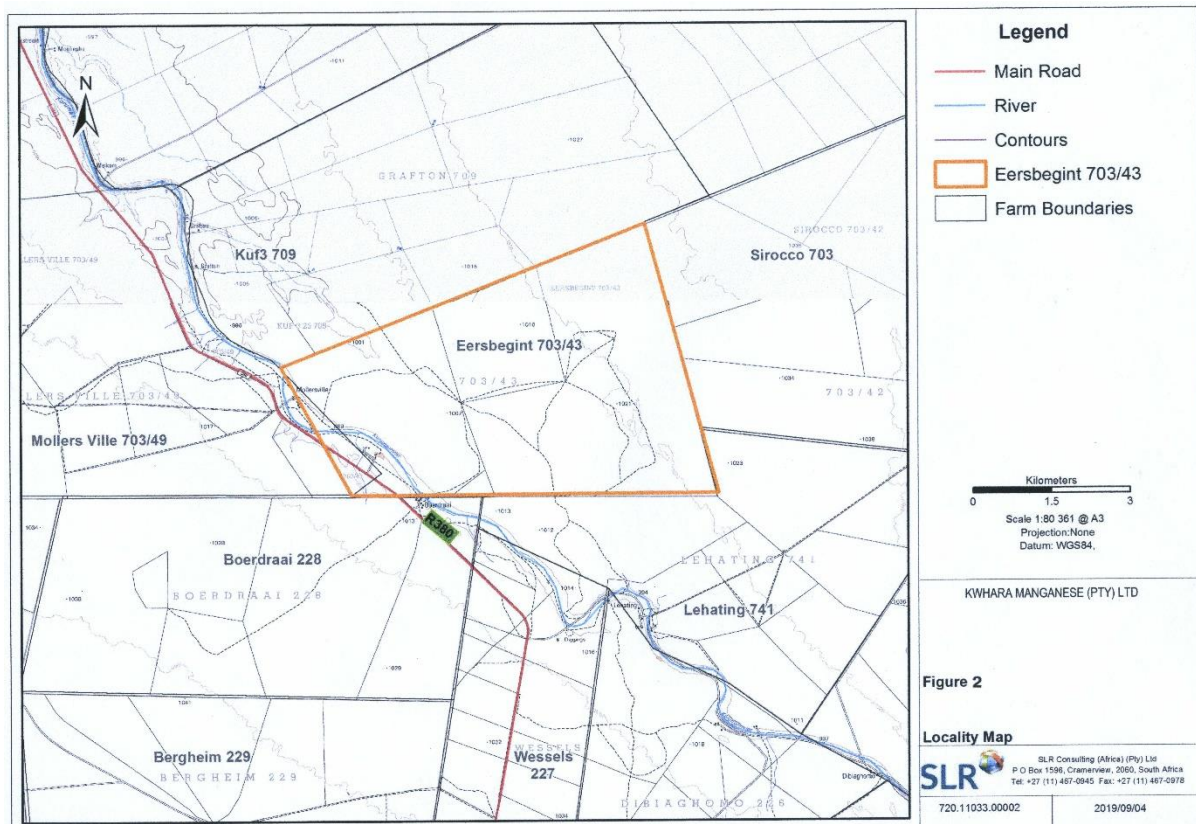


Figure 2: Map showing the farm boundaries. Eersbegint 703 is indicated in the red rectangle. Map supplied by SLR.

2. Methods and Terms of Reference

The Terms of Reference (ToR) for this study were to undertake a PIA and provide feasible management measures to comply with the requirements of SAHRA.

The methods employed to address the ToR included:

1. Consultation of geological maps, literature, palaeontological databases, published and unpublished records to determine the likelihood of fossils occurring in the affected areas. Sources included records housed at the Evolutionary Studies Institute at the University of the Witwatersrand and SAHRA databases;
2. Where necessary, site visits by a qualified palaeontologist to locate any fossils and assess their importance (*not applicable to this assessment*);
3. Where appropriate, collection of unique or rare fossils with the necessary permits for storage and curation at an appropriate facility (*not applicable to this assessment*); and
4. Determination of fossils' representivity or scientific importance to decide if the fossils can be destroyed or a representative sample collected (*not applicable to this assessment*).

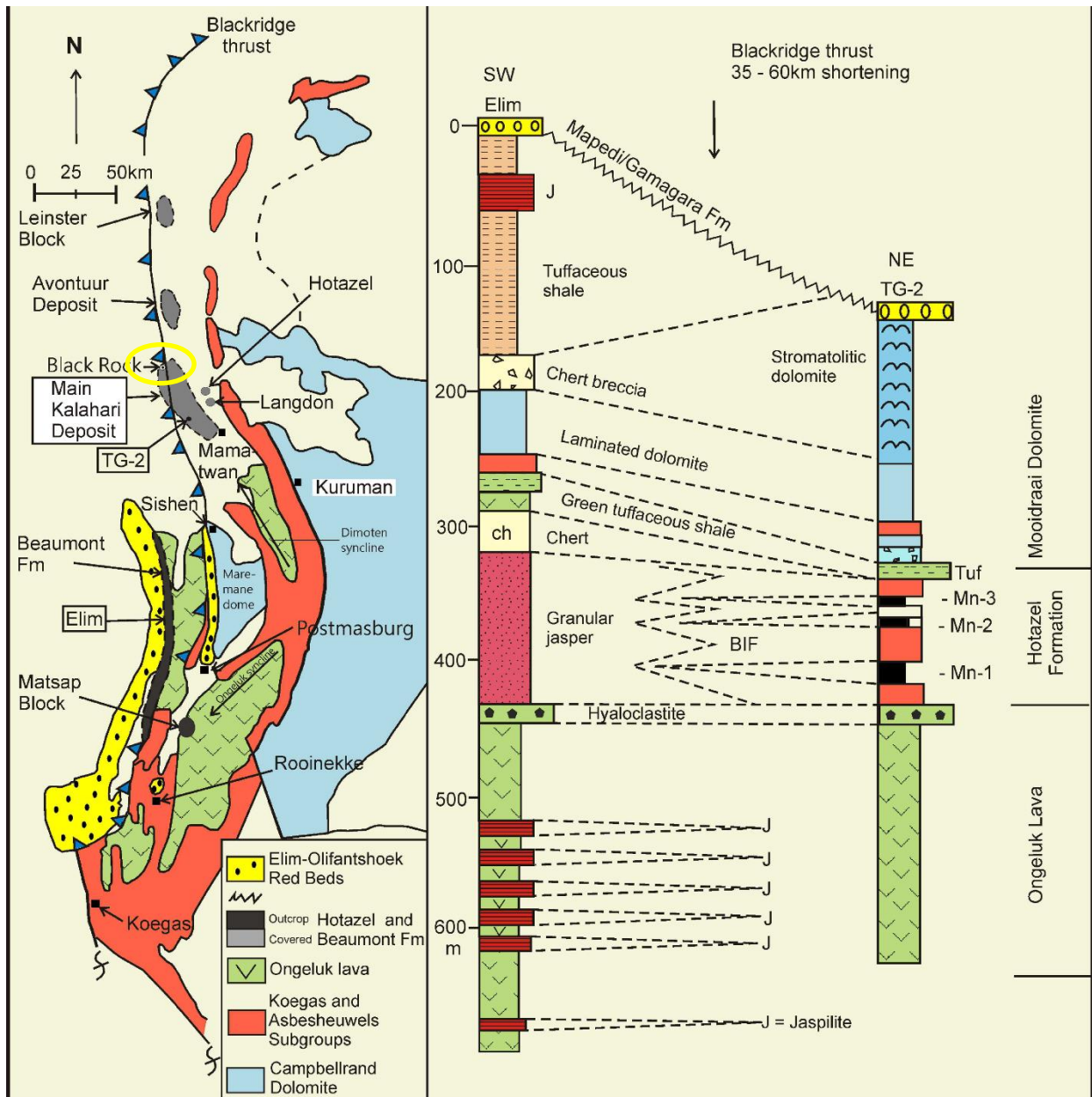
3. Geology and Palaeontology

i. Project location and geological context



Figure 3: Geological map of the area around the farm Eersbegint 703, northwest of Hotazel. The location of the proposed project is indicated within the blue rectangle. Abbreviations of the rock types are explained in Table 2. Map enlarged from the Geological Survey 1: 250 000 map Kuruman 2722, 1977.

There is a discrepancy in the two geological maps with the southern section of the Farm Eersbegint shown in Figure 3 from the Kuruman 2722 map from 1977, and the northern corner of the farm shown in Figure 4 from the older map Morokweng 2622 from ca 1972



4. (a) Regional map of the Transvaal Supergroup in Griqualand West showing the distribution of the Kalahari Manganese Field and Black Ridge thrust fault. (b) Schematic diagram indicating lateral interfingering of the Hotazel and Moodraai formations of the KMF on the Kaapvaal Craton to the east, in the footwall of the Black Ridge thrust fault with the Beaumont Formation to the west off the craton in the hangingwall of the thrust (from Cairncross and Beukes, 2013).

Figure 4: From Beukes et al., (2016), as described above, with the location of Eersbegt 703 shown in yellow.

The Hotazel Formation is composed of Manganese deposits and Banded Iron Formation (BIF) (Beukes et al., 2016). According to Eriksson et al., (2006) the Hotazel Formation has volcanic-exhalative manganese.

ii. Palaeontological context

The palaeontological sensitivity of the area under consideration is presented in Figure 5. The site for prospecting and target of the project are the potential manganese and Iron deposits of the Hotazel Formation. The manganese is of volcanic origin so does not preserve any fossils (Esiksson et al., 2006). Banded Iron Formations were formed by the free oxygen released by photosynthesising microbes in warm shallow seas that was absorbed by the iron, but no fossils are preserved in the BIF (Astrup et al., 1998).

The overlying Kalahari sands have a minor potential of preserving fossil because they are the right age, Quaternary (Plumstead, 1969). However, the sands are windblown (Aeolian) in this part of the country. It is very unlikely that any fossils would be entrained in the sands and they would not be in primary context but would have been transported from another area. Only more robust fossils, such as silicified wood fragments or bones would be able to survive the transport by wind. Based on the older Morokweng geological map (Figure 4) the northern part of the farm is overlain by Dwyka tillites and green lavas of the Daspoort Formation

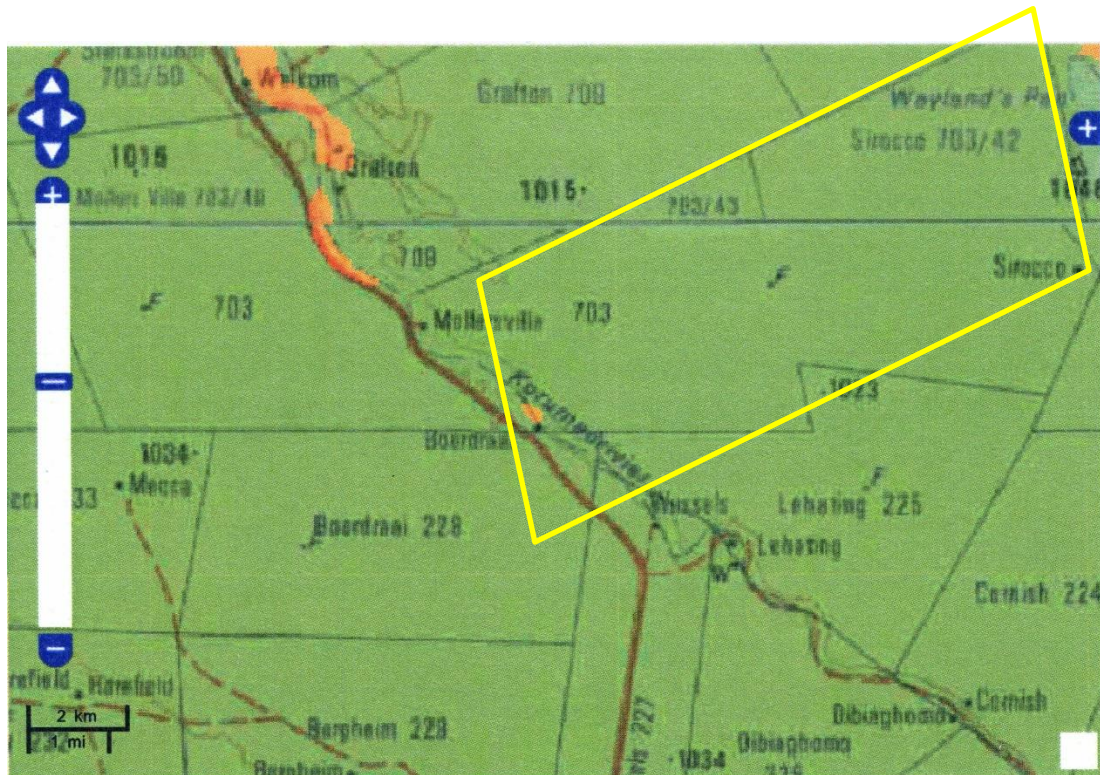


Figure 5: SAHRIS palaeosensitivity maps for the site for the proposed prospecting activities on Farm Eersbent 703, shown within the yellow rectangle. Colours indicate the following degrees of sensitivity: red = very highly sensitive; orange/yellow = high; green = moderate; blue = low; grey = insignificant/zero.

Dwyka Group tillites are unlikely to preserve fossils, only the mudstones have preserved any fossils and these tend to be rare and fragmented (Johnston et al., 2006).

The Dwyka Group is made up of seven facies that were deposited in a marine basin under differing environmental settings of glacial formation and retreat (Visser, 1986, 1989; Johnson et al., 2006). In the north these are called the Mbizane Formation, and the Elandsvlei Formation in the south. Described below are the seven facies (Johnson et al., 2006 p463-465):

The massive diamictite facies comprises highly compacted diamictite that is clast-poor in the north. It was deposited in subaqueous or subglacial positions.

The stratified diamictite comprises alternating diamictite, mudrock, sandstone and conglomerate beds. They are interpreted as being rapidly deposited, sediment gravity flows but with some possible reworking of the subglacial diamictites.

The massive carbonate-rich diamictite facies is clast-poor and was formed by the rainout of debris, with the carbonate probably originating by crystallisation from interstitial waters.

The conglomerate facies ranges from single layer boulder beds to poorly sorted pebble and granule conglomerates. The boulder beds are interpreted as lodgement deposits whereas the poorly sorted conglomerates are a product of water-reworking of diamicton by high-density sediment gravity flows.

The sandstone facies were formed as turbidite deposits.

The mudrock with stones facies represents rainout deposits in the distal iceberg zone.

The mudrock facies consists of dark-coloured, commonly carbonaceous mudstone, shale or silty rhythmite that was formed when the mud or silt in suspension settled. This is the only fossiliferous facies of the Dwyka Group.

The Dwyka *Glossopteris* flora outcrops are very sporadic and rare. Of the seven facies that have been recognised in the Dwyka Group fossil plant fragments have only been recognised from the mudrock facies. They have been recorded from around Douglas only (Johnson et al., 2006; Anderson and McLachlan 1976) although the Dwyka Group exposures are very extensive. Jurassic Dolerites do not contain fossils as they are igneous intrusives.

The Daspoort Formation in this area, according to the geological map, is comprised of green lavas. Lavas are volcanic and do not preserve fossils.

From the SAHRIS map above the area is indicated as moderately sensitive (green) so a desktop assessment has been completed for the project.

4. Impact assessment

An assessment of the potential impacts to possible palaeontological resources considers the criteria encapsulated in **Error! Reference source not found.**:

Definition of SIGNIFICANCE	Significance = consequence x probability
Definition of CONSEQUENCE	Consequence is a function of intensity, spatial extent and duration

Criteria for ranking of the INTENSITY of environmental impacts	VH	Severe change, disturbance or degradation. Associated with severe consequences. May result in severe illness, injury or death. Targets, limits and thresholds of concern continually exceeded. Substantial intervention will be required. Vigorous/widespread community
	H	Prominent change, disturbance or degradation. Associated with real and substantial consequences. May result in illness or injury. Targets, limits and thresholds of concern regularly exceeded. Will definitely require intervention. Threats of community action. Regular complaints can be expected when the
	M	Moderate change, disturbance or discomfort. Associated with real but not substantial consequences. Targets, limits and thresholds of concern may occasionally be exceeded. Likely to require some intervention. Occasional
	L	Minor (Slight) change, disturbance or nuisance. Associated with minor consequences or deterioration. Targets, limits and thresholds of concern rarely exceeded. Require only minor interventions or clean-up actions. Sporadic
	VL	Negligible change, disturbance or nuisance. Associated with very minor consequences or deterioration. Targets, limits and thresholds of concern never exceeded. No interventions or clean-up actions required. No
	VL+	Negligible change or improvement. Almost no benefits. Change not measurable/will remain in the current range.
	L+	Minor change or improvement. Minor benefits. Change not measurable/will remain in the current range. Few people will experience benefits.
	M+	Moderate change or improvement. Real but not substantial benefits. Will be within or marginally better than the current conditions. Small number of people
	H+	Prominent change or improvement. Real and substantial benefits. Will be better than current conditions. Many people will experience benefits. General community
	VH+	Substantial, large-scale change or improvement. Considerable and widespread benefit. Will be much better than the current conditions. Favourable publicity and/or widespread support expected.
Criteria for ranking the DURATION of impacts	VL	Very short, always less than a year. Quickly reversible
	L	Short-term, occurs for more than 1 but less than 5 years. Reversible over time.
	M	Medium-term, 5 to 10 years.
	H	Long term, between 10 and 20 years. (Likely to cease at the end of the operational life of the activity)
	VH	Very long, permanent, +20 years (Irreversible. Beyond closure)
Criteria for ranking the EXTENT of impacts	VL	A part of the site/property.
	L	Whole site.
	M	Beyond the site boundary, affecting immediate neighbours
	H	Local area, extending far beyond site boundary.
	VH	Regional/National

PART B: DETERMINING CONSEQUENCE EXTENT

A part of the site/property	Whole site	Beyond the site, affecting neighbours	Local area, extending far beyond site.	Regional/ National
VL	L	M	H	VH

INTENSITY = VL

Very long	VH	Low	Low	Medium	Medium	High
Long term	H	Low	Low	Low	Medium	Medium
Medium term	M	Very Low	Low	Low	Low	Medium
Short term	L	Very low	Very Low	Low	Low	Low
Very short	VL	Very low	Very Low	Very Low	Low	Low
INTENSITY = L						
Very long	VH	Medium	Medium	Medium	High	High
Long term	H	Low	Medium	Medium	Medium	High
Medium term	M	Low	Low	Medium	Medium	Medium
Short term	L	Low	Low	Low	Medium	Medium
Very short	VL	Very low	Low	Low	Low	Medium
INTENSITY = M						
Very long	VH	Medium	High	High	High	Very High
Long term	H	Medium	Medium	Medium	High	High
Medium term	M	Medium	Medium	Medium	High	High
Short term	L	Low	Medium	Medium	Medium	High
Very short	VL	Low	Low	Low	Medium	Medium
INTENSITY = H						
Very long	VH	High	High	High	Very High	Very High
Long term	H	Medium	High	High	High	Very High
Medium term	M	Medium	Medium	High	High	High
Short term	L	Medium	Medium	Medium	High	High
Very short	VL	Low	Medium	Medium	Medium	High

DURATION	Very long	VH	High	High	Very High	Very High	Very High
	Long term	H	High	High	High	Very High	Very High
	Medium term	M	Medium	High	High	High	Very High
	Short term	L	Medium	Medium	High	High	High
	Very short	VL	Low	Medium	Medium	High	High

PART C: DETERMINING SIGNIFICANCE							
PROBABILITY (of exposure to impacts)	Definite/ Continuous	VH	Very Low	Low	Medium	High	Very High
	Probable	H	Very Low	Low	Medium	High	Very High
	Possible/ frequent	M	Very Low	Very Low	Low	Medium	High
	Conceivable	L	Insignificant	Very Low	Low	Medium	High
	Unlikely/ improbable	VL	Insignificant	Insignificant	Very Low	Low	Medium
			VL	L	M	H	VH
CONSEQUENCE							

PART D: INTERPRETATION OF SIGNIFICANCE	
Significance	Decision guideline
Very High	Potential fatal flaw unless mitigated to lower significance.
High	It must have an influence on the decision. Substantial mitigation will be required.
Medium	It should have an influence on the decision. Mitigation will be required.
Low	Unlikely that it will have a real influence on the decision. Limited mitigation is likely to be required.

Very Low	It will not have an influence on the decision. Does not require any mitigation
Insignificant	Inconsequential, not requiring any consideration.

Pre-mitigation

Intensity = L
 Extent = VL
 Duration = VH
 Probability = VL

Post-mitigation (collection of any fossils)

Intensity = VL
 Extent = VL
 Duration = VL
 Probability = VL

Based on the nature of the project, surface activities may impact upon the fossil heritage only if preserved in the development footprint and this has a low probability. The geological structures suggest that the rocks are either much too old to contain fossils. Furthermore, the surface material to be cored through is loose Aeolian sand and this does not preserve fossils. Since there is an extremely small chance that fossils may have been entrained and transported in the sand and may be disturbed, a Fossil Chance find protocol has been added to this report. If fossils are found and collected then there will be NO impact on the fossil heritage. Taking account of the defined criteria, the potential impact to fossil heritage resources is extremely low.

5. Assumptions and uncertainties

Based on the geology of the area and the palaeontological record as we know it, it can be assumed that the formation and layout of the manganese deposits, banded iron formation and Aeolian sands are typical for the country and do not contain fossil plant, insect, invertebrate and vertebrate material. The Aeolian sands of the Quaternary period would not preserve fossils.

6. Recommendation

Based on experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the loose sands of the Quaternary. Nonetheless, a Fossil Chance Find Protocol should be added to the EMPr: if fossils are found once coring has commenced then they should be rescued and a palaeontologist called to assess and collect a representative sample.

7. References

Astrup, J., Tsikos, H., 1998. Manganese. In: M.G.C. Wilson and C.R. Anhaeusser (Eds). The Mineral Resources of South Africa: Handbook. Council for Geosciences 16, p. 450-460.

Beukes, N.J., Swindell, E.W.P., Wabo, H., 2016. Manganese deposits of Africa. *Episodes*, 39(3), 1-33. DOI: 10.18814/epiugs/2016/v39i2/95779.

Erikssen, P.G., Altermann, W., Hartzler, F.J., 2006. The Transvaal Supergroup and its precursors. In: Johnson, M.R., Anhaeusser, C.R. and Thomas, R.J., (Eds). The Geology of South Africa. Geological Society of South Africa, Johannesburg / Council for Geoscience, Pretoria. pp 237-260.

Johnson, M.R., van Vuuren, C.J., Visser, J.N.J., Cole, D.I., Wickens, H.deV., Christie, A.D.M., Roberts, D.L., Brandl, G., 2006. Sedimentary rocks of the Karoo Supergroup. In: Johnson, M.R., Anhaeusser, C.R. and Thomas, R.J., (Eds). The Geology of South Africa. Geological Society of South Africa, Johannesburg / Council for Geoscience, Pretoria. Pp 461 – 499.

Plumstead, E.P., 1969. Three thousand million years of plant life in Africa. Geological Society of southern Africa, Annexure to Volume LXXII. 72pp + 25 plates.

Visser, J.N.J., 1986. Lateral lithofacies relationships in the glaciogene Dwyka Formation in the western and central parts of the Karoo Basin. *Transactions of the Geological Society of South Africa* 89, 373-383.

Visser, J.N.J., 1989. The Permo-Carboniferous Dwyka Formation of southern Africa: deposition by a predominantly subpolar marine icesheet. *Palaeogeography, Palaeoclimatology, Palaeoecology* 70, 377-391.

8. Chance Find Protocol

Monitoring Programme for Palaeontology – to commence once the excavations and coring begin.

1. The following procedure is only required if fossils are seen on the surface and when excavations/coring commence.
2. When excavations begin the rocks must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (plants, insects, bone, coal) should be put aside in a suitably protected place. This way the mining activities will not be interrupted.
3. Photographs of similar fossil plants must be provided to the developer to assist in recognizing the fossil plants in the shales and mudstones (for example see Figure 1.5). This information will be built into the EMP's training and awareness plan and procedures.

4. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
5. If there is any possible fossil material found by the developer/environmental officer/miners then the qualified palaeontologist sub-contracted for this project, should visit the site to inspect the selected material and check the dumps where feasible.
6. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.
7. If no good fossil material is recovered then no site inspections by the palaeontologist will not be necessary. A final report by the palaeontologist must be sent to SAHRA once the project has been completed and only if there are fossils.
8. If no fossils are found and the excavations have finished then no further monitoring is required.

Appendix A – Examples of fossils from the Quaternary



Figure 7: Examples of silicified woods that might have been entrained in the aeolian sands.



Figure 8: Examples of Quaternary and modern bones found in loose sediments.

Appendix B – Details of specialist

Curriculum vitae (short) - Marion Bamford PhD September 2019

I) Personal details

Surname : **Bamford**
First names : **Marion Kathleen**
Present employment : Professor; Director of the Evolutionary Studies Institute.
Member Management Committee of the NRF/DST Centre of Excellence Palaeosciences, University of the Witwatersrand, Johannesburg, South Africa-
Telephone : +27 11 717 6690
Fax : +27 11 717 6694
Cell : 082 555 6937
E-mail : marion.bamford@wits.ac.za ; marionbamford12@gmail.com

ii) Academic qualifications

Tertiary Education: All at the University of the Witwatersrand:

1980-1982: BSc, majors in Botany and Microbiology. Graduated April 1983.

1983: BSc Honours, Botany and Palaeobotany. Graduated April 1984.

1984-1986: MSc in Palaeobotany. Graduated with Distinction, November 1986.

1986-1989: PhD in Palaeobotany. Graduated in June 1990.

iii) Professional qualifications

Wood Anatomy Training (overseas as nothing was available in South Africa):

1994 - Service d'Anatomie des Bois, Musée Royal de l'Afrique Centrale, Tervuren, Belgium, by Roger Dechamps

1997 - Université Pierre et Marie Curie, Paris, France, by Dr Jean-Claude Koeniguer

1997 - Université Claude Bernard, Lyon, France by Prof Georges Barale, Dr Jean-Pierre Gros, and Dr Marc Philippe

iv) Membership of professional bodies/associations

Palaeontological Society of Southern Africa

Royal Society of Southern Africa - Fellow: 2006 onwards

Academy of Sciences of South Africa - Member: Oct 2014 onwards

International Association of Wood Anatomists - First enrolled: January 1991

International Organization of Palaeobotany – 1993+

Botanical Society of South Africa

South African Committee on Stratigraphy – Biostratigraphy - 1997 - 2016

SASQUA (South African Society for Quaternary Research) – 1997+

PAGES - 2008 –onwards: South African representative

ROCEEH / WAVE – 2008+

INQUA – PALCOMM – 2011+onwards

vii) Supervision of Higher Degrees

All at Wits University

Degree	Graduated/completed	Current
Honours	7	0
Masters	10	4
PhD	12	5
Postdoctoral fellows	10	3

viii) Undergraduate teaching

Geology II – Palaeobotany GEOL2008 – average 65 students per year
Biology III – Palaeobotany APES3029 – average 25 students per year
Honours – Evolution of Terrestrial Ecosystems; African Plio-Pleistocene Palaeoecology;
Micropalaeontology – average 2-8 students per year.

ix) Editing and reviewing

Editor: *Palaeontologia africana*: 2003 to 2013; 2014 – Assistant editor

Guest Editor: *Quaternary International*: 2005 volume

Member of Board of Review: *Review of Palaeobotany and Palynology*: 2010 –
Cretaceous Research: 2014 -

Review of manuscripts for ISI-listed journals: 25 local and international journals

x) Palaeontological Impact Assessments

Selected – list not complete:

- Thukela Biosphere Conservancy 1996; 2002 for DWAF
- Vioolsdrift 2007 for Xibula Exploration
- Rietfontein 2009 for Zitholele Consulting
- Bloeddrift-Baken 2010 for TransHex
- New Kleinfontein Gold Mine 2012 for Prime Resources (Pty) Ltd.
- Thabazimbi Iron Cave 2012 for Professional Grave Solutions (Pty) Ltd
- Delmas 2013 for Jones and Wagener
- Klipfontein 2013 for Jones and Wagener
- Platinum mine 2013 for Lonmin
- Syferfontein 2014 for Digby Wells
- Canyon Springs 2014 for Prime Resources
- Kimberley Eskom 2014 for Landscape Dynamics
- Yzermyne 2014 for Digby Wells
- Matimba 2015 for Royal HaskoningDV
- Commissiekraal 2015 for SLR
- Harmony PV 2015 for Savannah Environmental
- Glencore-Tweefontein 2015 for Digby Wells
- Umkomazi 2015 for JLB Consulting
- Ixia coal 2016 for Digby Wells
- Lambda Eskom for Digby Wells
- Alexander Scoping for SLR
- Perseus-Kronos-Aries Eskom 2016 for NGT
- Mala Mala 2017 for Henwood
- Modimolle 2017 for Green Vision
- Klipoortjie and Finaalspan 2017 for Delta BEC
- Ledjadja borrow pits 2018 for Digby Wells
- Lungile poultry farm 2018 for CTS
- Olienhout Dam 2018 for JP Celliers
- Isondlo and Kwasobabili 2018 for GCS

- Kanakies Gypsum 2018 for Cabanga
- Nababeep Copper mine 2018
- Glencore-Mbali pipeline 2018 for Digby Wells
- Remhoogte PR 2019 for A&HAS
- Bospoort Agriculture 2019 for Kudzala
- Overlooked Quarry 2019 for Cabanga
- Richards Bay Powerline 2019 for NGT
- Eilandia dam 2019 for ACO

xi) Research Output

Publications by M K Bamford up to June 2018 peer-reviewed journals or scholarly books: over 140 articles published; 5 submitted/in press; 8 book chapters.

Scopus h index = 27; Google scholar h index = 32;

Conferences: numerous presentations at local and international conferences.

xii) NRF Rating

NRF Rating: B-2 (2016-2020)

NRF Rating: B-3 (2010-2015)

NRF Rating: B-3 (2005-2009)

NRF Rating: C-2 (1999-2004)