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East Manganese: Phase 1 Heritage Impact Assessment on the farm East 270 (Portion 1 & Re) within the John Taolo Gaetsewe District Municipality, Northern Cape



June 2018

Background information on project:

East Manganese: Phase 1 Heritage Impact Assessment on the farm East 270 (Portion 1 & Re) within the John Taolo Gaetsewe District Municipality, Northern Cape. The applicant, Southern Ambition 1549 (Pty) Ltd (Registration No. 217/509736/07) holds a prospecting right over the farm East 270 (Portion 1 & Re) in terms of Regulation 2(2) of the Mineral and Petroleum Resources Development Act (MPRDA) (Act 28 of 2002). Strata Africa Resources (Pty) Ltd commissioned African Heritage Consultants to conduct a Phase 1 Heritage Impact Assessment (HIA) over the said portions including the footprint area of the proposed open cast manganese mine. The farm is 1 017 ha in extent.

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List of acronyms

AIA	Archaeological Impact Assessment
ASAPA	Association of Southern African Professional Archaeologists
CCS	Cryptocrystalline silicas
CRM	Cultural Resources Management
DEA	Department of Environmental Affairs
EIA	Early Iron Age
ESA	Earlier Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
LMS	London Missionary Society
LIA	Late Iron Age
LSA	Later Stone Age
MPRDA	Mineral and Petroleum Resources Development Act (Act 28 of 2002).
MSA	Middle Stone Age
NEMA	National Environmental Management Act (No. 107 of 1998)
NHRA	National Heritage Resources Act (No. 25) of 1999
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System

1 Executive summary

Southern Ambition 1549 (Pty) Ltd proposes to develop an open cast manganese mine and associated infrastructure for East Manganese Mine. The open cast manganese mine pit will be on the farm East 270 (Portion 1 & Re) within the John Taolo Gaetsewe District in the Northern Cape. The farm is 1 017 ha in extent.

African Heritage Consultants were appointed to undertake a Phase I Heritage Assessment. The brief was to survey the footprint and adjacent land in order to record all existing cultural and heritage resources and to assess potential impacts to heritage resources that might occur through the proposed development of the open cast manganese mine on the farm East 270 (Portion 1 & Re) (Figure 1). The planned development is located at 27° 9'36.90"S and 22°55'5.19"E The locality under review was visited between 8 and 10 May 2018 and inspected on foot. Visibility was good.

The desktop literature study indicated a generally low level of heritage resources around Hotazel and within the immediate landscape. Prehistoric and historical settlement and utilization of the resources of the region focussed mostly on sources of water such as the GaMogara River, springs and pans. Traces of prehistoric occupations are mainly in the form of dispersed lithics that hint at previous living sites and subsistence activities. These include stone tools that are characteristic of all three successive periods of the southern African Stone Age.

Stone tools were found in the vicinity of the Ga-Mogara River during the field survey. These were mostly isolated specimens and scatters of stone tools. A few Large Cutting Tools that are typical of the ESA were present. However, most of the lithics comprise representative MSA examples, while a few are more characteristic of LSA tool types. The stone tools that have been located were mostly in dispersed contexts. Where there were concentrations of lithics, these occurred in low densities of <10 tools per square metre. All of the identified scatters of stone tools are of low significance and no mitigation is recommended.

Two informal cemeteries were located. Cemetery 1, demarcated with what is now a somewhat dilapidated fence, contains two graves and possibly another grave. Cemetery 2 contains around 18 graves. The graves are marked by headstones of calcrete cobbles and in two instances, banded iron stones. From consultations with the local farm workers it seemed that the graves have not been recently visited by any relatives. This is borne out by a complete lack of grave offerings.

The cemeteries are situated outside the footprint of the proposed development and will not be impacted. While there is no objection to the proposed development based on a very low level of archaeological remains, the presence of graves identified during the survey has to be addressed. It is accordingly recommended that the two cemeteries should be clearly demarcated and fenced. Graves are deemed to have high cultural significance for their social value. The graves are accordingly graded as a Grade IIIA resource.

This report will form part of the Environmental review process and public participation process

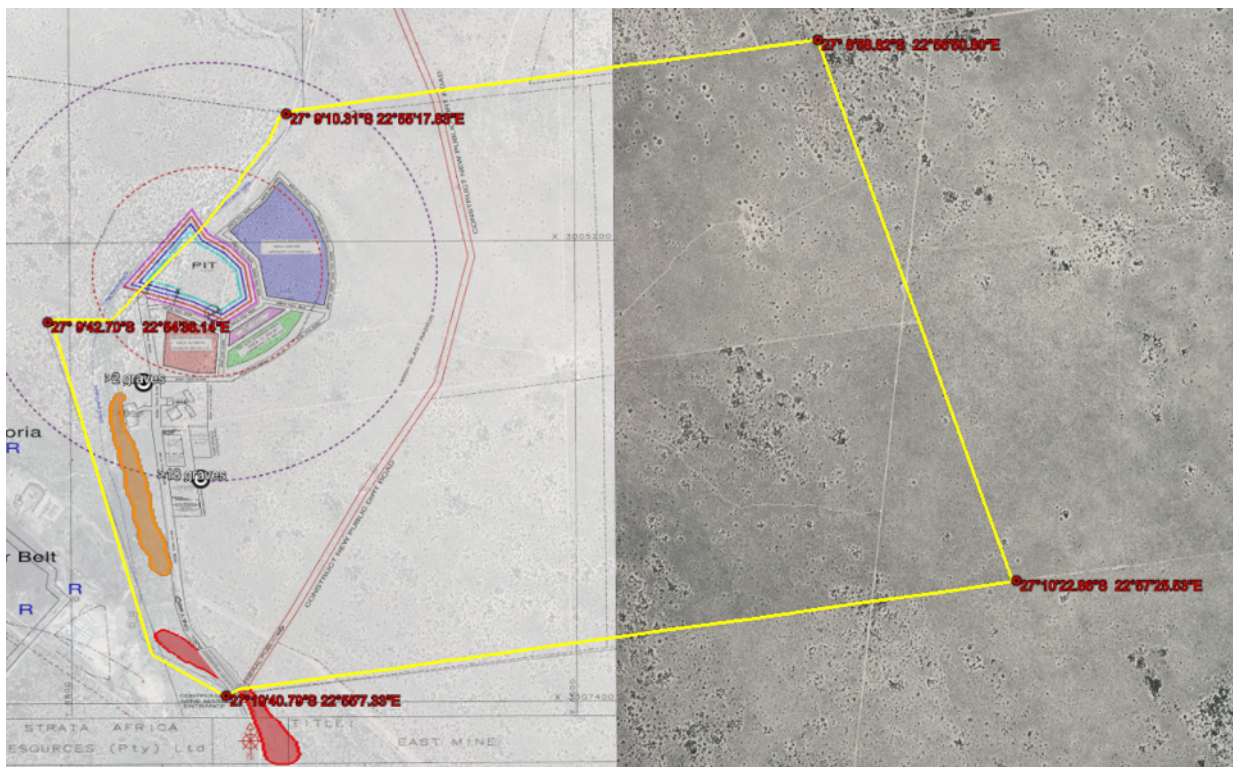


Figure 1. General map of the study area with overlay of mine impact

2 Terms of reference

African Heritage Consultants were appointed to conduct a Heritage Impact Assessment (HIA) on the farm East 270 (Portion 1 & Re) within the John Taolo Gaetsewe District. The area where the proposed development for the East Manganese Mine is located is on an area of land that encompasses 1 017 ha. In terms of Section 38(3) of the National Heritage Resources Act (No. 25 of 1999), all heritage resources should be identified and assessed prior to changes to the land such as mining and infrastructural developments. The Proposed mine is currently in the process of obtaining the relevant Environmental approvals. This report will form part of that process and be subject to Public consultation as part of the larger public participation process.

3 Background information on the project

3.1 Project description

The proposed project is open cast manganese mine of the East Manganese Mine situated on the Farm East 270 (Portion 1 & RE) (SG ID: C0410000000027000000) in the John Taolo Gaetsewe District. The locality comprises an area of 1 017 hectares.

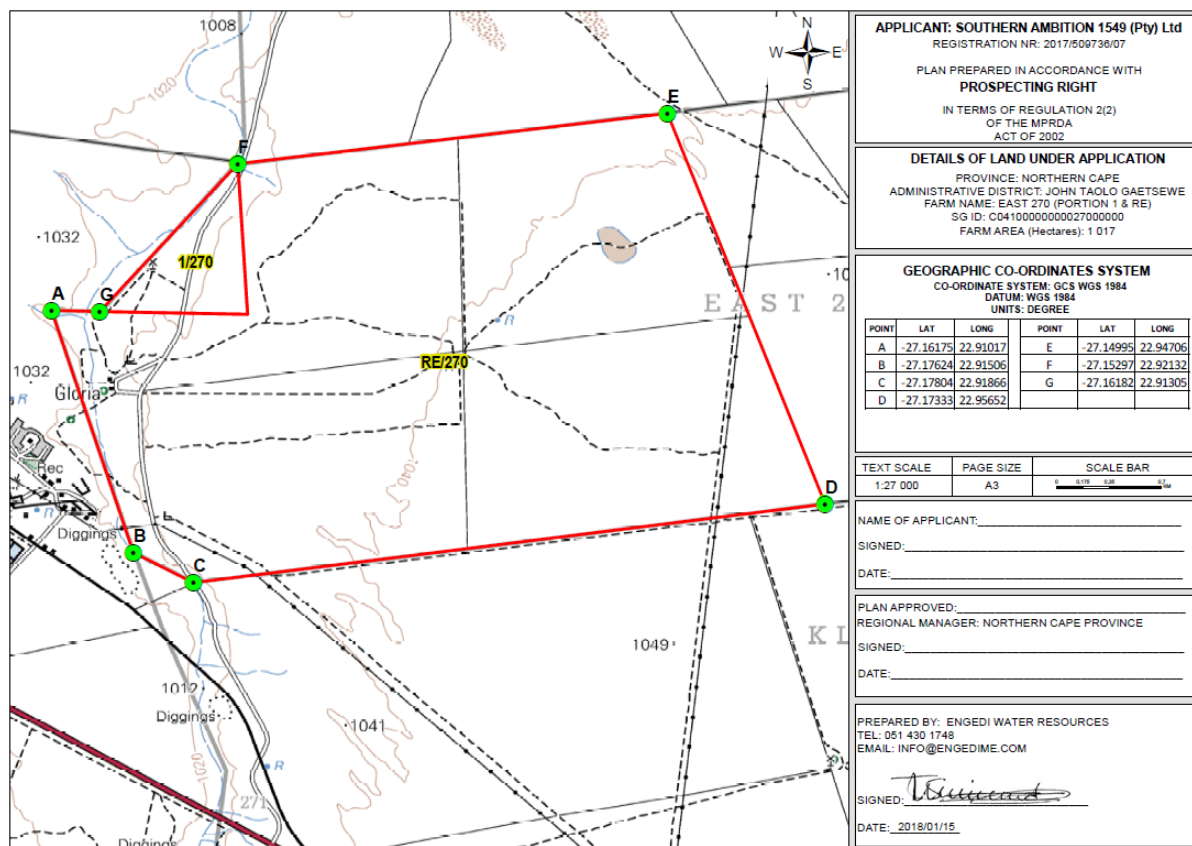


Figure 2. Farm portions with coordinates.

3.2 Type of development

The construction of an open-cast manganese mine and associated infrastructure for East Manganese Mine.

3.3 Land use

The land is currently zoned for agricultural development.

3.4 Whether re-zoning and/or subdivision of land is involved

No.

3.5 Developer and consultant and owner and name and contact detail

Applicant/project owner and consultant information

Applicant/project owner Southern Ambition 1549 (Pty) Ltd: Registration No. 2017/509736/07

Representative Lionel Koster, Director

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Contact person Lionel Koster, Director

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Local contact person Chris van der Merwe

Contact details 071 454 2658

Land owner Jacobus Nicolaas Pretorius (ID 620806 5032 081)
and Heletta Rosia Pretorius (ID 620106 0056 080)

Date of Report 14 May 2018

4 Scope and purpose of the report

The HIA report provides a general background to the project, an introduction to the southern African heritage that gives a brief outline of the chronological succession of the various phases of settlement, provides context for the heritage resources of the immediate region of Hotazel and sets out the methodologies that were applied during this particular heritage assessment. The findings of the HIA are discussed and recommendations are made for mitigation.

5 Declaration of independence

African Heritage Consultants have no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

We declare that as independent consultants we have no business, financial, personal or other interest

in the proposed development project, application or appeal in respect of which we were appointed other than fair remuneration for work performed in connection with the activity or application.



U.S. Küsel



S.U. Küsel

6 Legislative framework

6.1 National Heritage Resource Act (NHRA)

The National Heritage Resources Act (NHRA) (Act No. 25 of 1999) is the primary legislative act dealing with the conservation and management of heritage resources. In brief the Act aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that this may be bequeathed to future generations.

The Act clearly defines the national estate and sets out principles for the management of heritage resources, determines the constitution, powers, functions and duties of heritage authorities and provides a framework for the enforcement of the Act. All sites, heritage resources and archaeological remains are protected in terms of the National Heritage Resources Act (NHRA) Act No. 25 of 1999:

- All archaeological remains, artefactual features and structures older than 100 years and historic structures older than 60 years are protected by the National Heritage Resources Act (NHRA) (Act No. 25 of 1999, section 35). No archaeological artefact, assemblage or settlement (site) may be moved or destroyed without the necessary approval from the South African Heritage Resources Agency (SAHRA).
- Human remains older than 60 years are protected by the National Heritage Resources Act Section 36. Human remains that are less than 60 years old are protected by the Human Tissue Act (Act 65 of 1983 as amended).

The following sections of the South African Heritage Resources Act, 1999 (Act 25 of 1999) must be noted:

In terms of section 3 (1 & 2) of the NHRA, heritage resources of South Africa that are of cultural significance or other special value for the present community and for future generations and are considered part of the national estate and fall within the sphere of operations of heritage resources authorities include:

<p>(a) <i>places, buildings, structures and equipment of cultural significance;</i></p> <p>(b) <i>places to which oral traditions are attached or which are associated with living heritage;</i></p> <p>(c) <i>historical settlements and townscapes;</i></p> <p>(d) <i>landscapes and natural features of cultural significance;</i></p> <p>(e) <i>geological sites of scientific or cultural importance;</i></p> <p>(f) <i>archaeological and palaeontological sites;</i></p> <p>(g) <i>graves and burial grounds, including—</i></p> <p style="padding-left: 20px;">(i) <i>ancestral graves;</i></p> <p style="padding-left: 20px;">(ii) <i>royal graves and graves of traditional leaders;</i></p> <p style="padding-left: 20px;">(iii) <i>graves of victims of conflict;</i></p> <p style="padding-left: 20px;">(iv) <i>graves of individuals designated by the Minister by notice in the Gazette;</i></p> <p style="padding-left: 20px;">(v) <i>historical graves and cemeteries; and</i></p> <p style="padding-left: 20px;">(vi) <i>other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);</i></p> <p>(h) <i>sites of significance relating to the history of slavery in South Africa;</i></p> <p>(i) <i>movable objects, including—</i></p> <p style="padding-left: 20px;">(i) <i>objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;</i></p> <p style="padding-left: 20px;">(ii) <i>objects to which oral traditions are attached or which are associated with living heritage;</i></p> <p style="padding-left: 20px;">(iii) <i>ethnographic art and objects;</i></p> <p style="padding-left: 20px;">(iv) <i>military objects;</i></p> <p style="padding-left: 20px;">(v) <i>objects of decorative or fine art;</i></p> <p style="padding-left: 20px;">(vi) <i>objects of scientific or technological interest; and</i></p> <p style="padding-left: 20px;">(vii) <i>books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 (xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).</i></p>
<p>(3) <i>Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of—</i></p> <p>(a) <i>its importance in the community, or pattern of South Africa's history;</i></p> <p>(b) <i>its possession of uncommon, rare or endangered aspects of South Africa's 30 natural or cultural heritage;</i></p> <p>(c) <i>its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;</i></p> <p>(d) <i>its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;</i></p> <p>(e) <i>its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;</i></p> <p>(f) <i>its importance in demonstrating a high degree of creative or technical achievement at a particular period;</i></p> <p>(g) <i>its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;</i></p> <p>(h) <i>its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and</i></p> <p>(i) <i>sites of significance relating to the history of slavery in South Africa.</i></p>

Note that all sites and artefacts associated with the Anglo Boer War are sensitive. It is critical that this information be relayed to visitors, tour operators and private landowners. This message also needs to be reinforced through appropriate signage. From a tourism development and visitor management perspective there are a number of activities that can potentially trigger the need for a permit application or the submission of a Heritage Management Plan to the South African Heritage Resource Agency.

6.2 Grading

Section 7 of the NHRA distinguishes between three grades of declared (formally protected) heritage resources.

- Grade 1: Heritage resources with qualities so exceptional that they are of special national

significance.

- Grade II: Heritage resources which, although forming part of the national estate, can be considered to have special qualities that make them significant within the context of a province or a region. All other declared heritage resources in the province are by default Grade II.
- Grade III: Other heritage resources worthy of conservation.

Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade I and II resources are intended to be managed by the national and provincial heritage resources authorities respectively, while Grade III resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading.

According to a system formulated by SAHRA (2005/2007) for use in provinces where it has commenting authority sites of high local significance are afforded Grade IIIA (with the implication that site should be preserved in its entirety) and Grade IIIB (with the implication that part of the site could be mitigated and part preserved as appropriate) while sites of lesser significance are referred to as having 'General Protection' and rated with an A (high/medium significance, requires mitigation), B (medium significance, requires recording) or C (low significance, requires no further action) (Orton 2016: 5-6).

6.3 International treaties, conventions and charters

South Africa is signatory to a number of international agreements, which have implications for heritage conservation and management including the World Heritage Convention that places certain obligation on the state and civil society for the management of heritage resources.

South Africa as a member of the United Nations Organization for Education, Science and Culture (UNESCO) subscribes to and takes part in a number of the subsidiary programs including the International Council of Museums (ICOM), International Committee for Monuments and Sites (ICOMOS) and various other international conservation bodies under the umbrella of UNESCO.

Of these the most important and pertinent is the ICOMOS Charter for the Conservation of Places of Cultural Significance, commonly known as the Burra Charter. Although first adopted in 1979 the Charter remains current with the latest version adopted in October 2013. The Charter is considered

to be the international blueprint on the conservation of places of cultural significance. The Burra Charter accordingly sets the international standard for standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians. (Australian ICOMOS Charter for places of Cultural Significance 2013).

7 Methodology

Prior to conducting the site assessment a desktop survey of existing literature on the wider region was conducted to assess the heritage context. The relevant 1:50 000 topographical map, 2722BB, was consulted for pointers to possible heritage resources or previous settlements. The aerial photographs available on Google were scrutinised for any evidence of structural remains, likely areas for archaeological features and heritage resources. The SAHRIS data base was also accessed for previous heritage reports that relate to the general region of the survey. The Catalogue of Stone Age artefacts from Southern Africa in the British Museum is a valuable source too since it lists early collections of stone tools with the localities where these were obtained from (Mitchell 2002b).

Several reports on the palaeontology of the immediate and adjacent areas to the farm were consulted prior to the actual site survey (Almond 2012, 2013; 2016; Almond & Pether 2008.)

The survey was conducted from 8 to 10 May 2018. Prior to the field work all maps and diagrams of the proposed mine infrastructure provided by the client were mapped and plotted on Google Earth. Historical imagery and maps were systematically scrutinised to identify potential sites, areas of disturbance and vegetation anomalies. In addition to the area of impact a 200 m buffer around the entire proposed infrastructure was included to allow for contingencies. The data were transferred to the mobile App GPS HD (Motion X) to allow for georeferencing during the field survey via Ipad and Iphone. GPS coordinates were recorded with a Garmin e-Trex 30. During the field survey the locality under review was systematically inspected on foot.

Before the field work commenced, the local farm owner and workers were interviewed to establish whether any known heritage resources, graves or cemeteries were present on the property. Due to the fact that the current owner, Mr Nicky Pretorius, only occupied the farm

since the last couple of years, limited information could be sourced. Similarly Neels Kwetze, who currently works on the farm, has been in employment for around three years. I therefore contacted Joseph Kwetze, who provided valuable information. He previously worked on the farm from the early 2000s up until his retirement three years ago.

Some information was obtained from the project geologist as well the exploration drill team.

8 Detail of area surveyed

8.1 Site context

The proposed project comprises the construction of an open-cast mine consisting of a mine pit approximately 40 m deep, several stock piles of overburden, a mobile ore processing plant, stockpiles of processed ore, work yards, and offices. The project moreover includes the relocation of the existing gravel road to beyond the mine blast zone (1000 m from the pit). East Manganese Mine is situated on the Farm East 270 (Portion 1 & RE) (SG ID: C0410000000027000000) in the John Taolo Gaetsewe District. The locality comprises an area of 1 017 hectares.

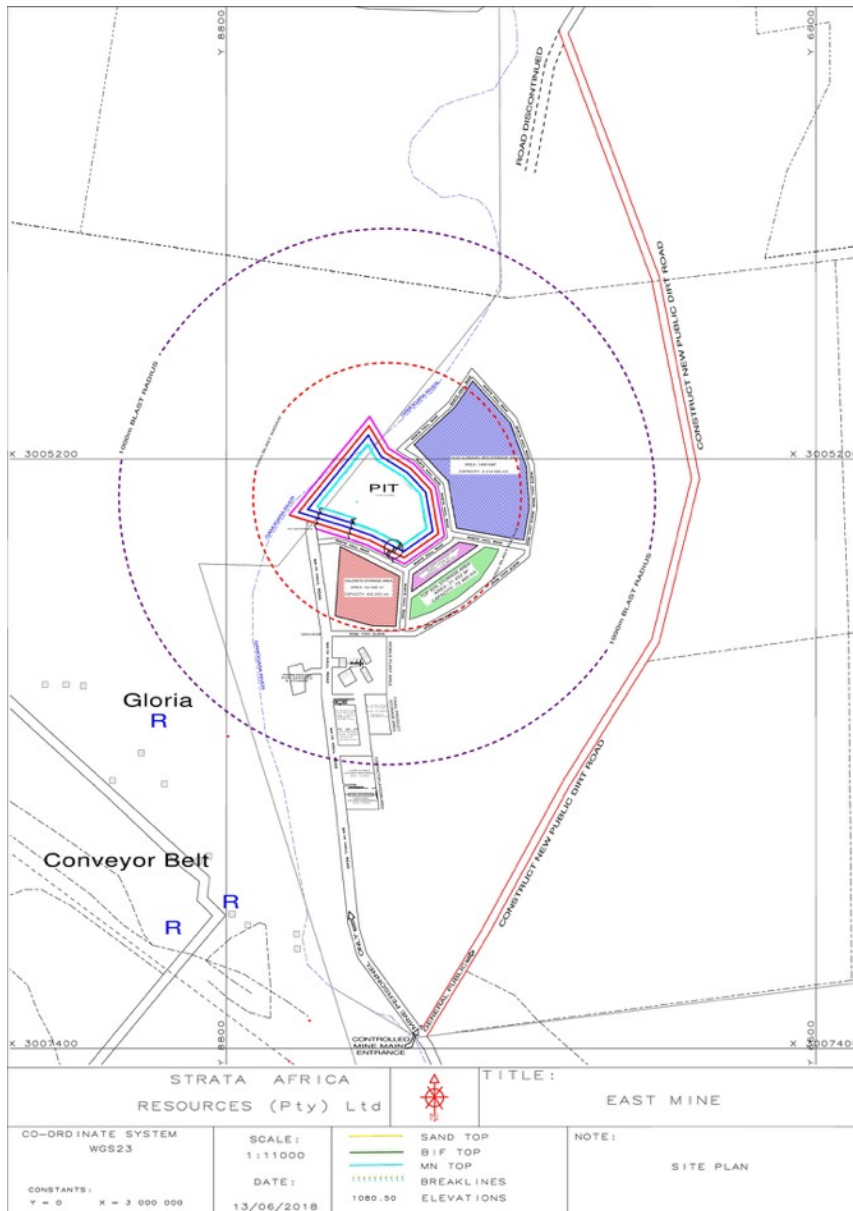


Figure 3. Proposed layout of mine infrastructure across the western section of the study area.

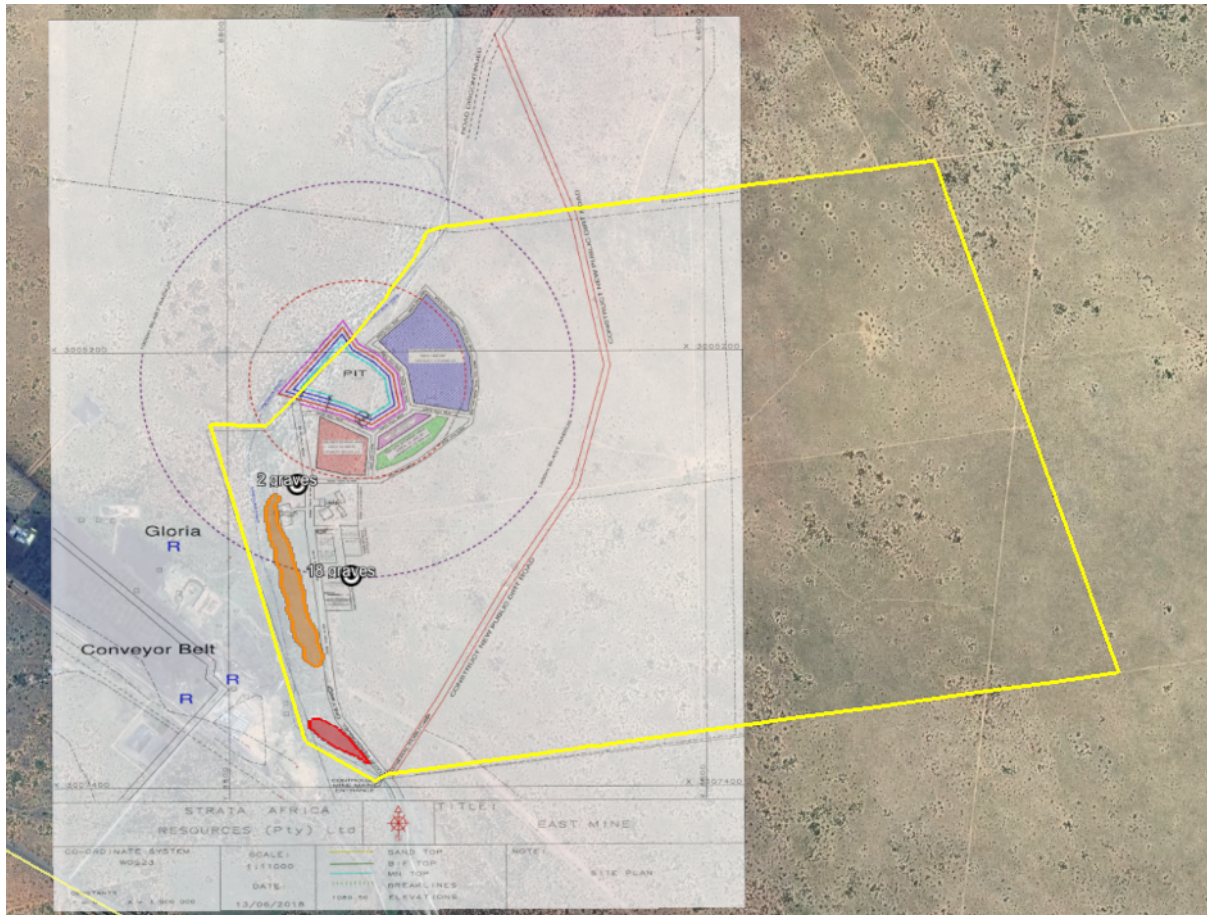


Figure 4. Mine infrastructure overlaid onto Google Earth imagery to illustrate the project impact area.

8.2 General description of the locality

The study area is situated to the east of the Ga-Mogara. The Ga-Mogara is a perennial river with an estimated terrain elevation of 1004 metre above sea level. The River, which is the lowest point on the farm and surrounding landscape, is represented by a 20 to 40 m-wide dry river channel. The adjacent river banks exhibit a mix of calcretes, river gravels and Kalahari sand deposits. The bank slope in general varies between 1:3 and 1:10. In the terrestrial zone the landscape is dominated by deep Kalahari sands. Despite extensive surveying, no outcrops of underlying geological formations, gravels or lithic materials could be located on the farm.



Figure 5. General view of the Ga-Mogara River with calcrete ridges in the foreground.



Figure 6. Exposed gravels within the river bed.

The characteristic red and yellow sands of the Kalahari region accumulated through multiple cycles of sand deposition across large parts of the region. The Kalahari Sands occur as a surface sheet of unconsolidated reddish aeolian sands up to 30m thick to form a vast dune sea or erg (Almond & Pether 2008). This often gives the appearance of mountains and isolated hills floating in a sea of red sand.

The Gordonia Formation that dates from the Late Pliocene/Pleistocene up to the Holocene represents the youngest Kalahari sediments being deposited during arid glacial intervals in association with climatic extremes of cold and low vegetation cover. Relict patches of red sands are remains of the vast Kalahari sand erg that formerly stretched irregularly southwards.

Calcretes underlie the surface sands and outcrop along the Ga-Mogara River to the west of Hotazel (Almond 2016). While there certainly is a background noise of lithic tools within the whole region, stone tools are generally limited — or not visible — within the sands being more commonly found in calcrete deposits close to water sources, as again confirmed by the current survey.

The Northern Cape Province is home to approximately 5400 species of plants from 6 biomes. More than 30% of all plants found in the province are endemic to the region. The Savanna and Nama Karoo biomes contain 11 vegetation types. The vegetation across the farm provides important clues on the distribution and nature of the local geology. Broadly the farm contains three distinct plant communities. On the western side, in association with shallow soils and calcrete formations in proximity to the Ga-Mogara River, vegetation is noticeably sparser and dominated by dwarf *Acacia mellifera*. In areas adjacent to the Ga-Mogara and overlaid by Kalahari sand, *Acacia/Vachellia erioloba* and *Acacia haematoxilon* and stands of *Acacia hebiclada* become more prevalent. Moving away from the river in association with more extensive sand deposits, the landscape is dominated by *Acacia haematoxilon*. In deep sand veld *Terminalia sericea* occur, there are large specimens of *Acacia erioloba* as well as the natural hybrid of *Acacia erioloba x haematoxilon*. Areas in proximity to the river area are severely invaded by Mesquite, *Prosopis* spp.



*Figure 7. Area adjacent to the river dominated by sand deposits with *Acacia hebiclada* in the foreground and *Acacia erioloba* in the background.*



Figure 8. General view towards the Ga-Mogara River.

On account of the late rains, the vegetation cover is currently very dense, which impacts negatively on the visibility of archaeological resources.



Figure 9. General view of Kalahari sand in the central section of the farm.



Figure 10. A localized pan in the dune veld. Despite an extensive search no lithics were located around or within this locality.



Figure 11. *Mesquite invasion.*

8.3 Context and importance of identified heritage localities

Despite the extensive field survey only limited heritage resources have been located within the study area. Stone Age localities with stone tools, manufacturing debris from tool production, and the two informal cemeteries represent the only heritage resources. The existing farm buildings and associated farm infrastructure date from the late 1960s to the present. The farm house is of modern construction and has been significantly altered by successive farm owners. It is not deemed representative of the local vernacular architecture or of a specific style.



Figure 12. *Farm buildings on East 270.*

8.3.1 Stone tools

Stone tools were recorded in the vicinity of the Ga-Mogara River. These include lithics characteristic of all three periods of the southern African Stone Age. A few Large Cutting Tools typical of the ESA

were present. Most of the lithics are, however, typical MSA examples such as blades, a knife (exhibiting secondary trimming or retouch), and triangular flakes. A few are more characteristic of LSA tool types. The stone tools that have been recorded were mostly in dispersed contexts. Where there were concentrations of lithics, these were in low densities of <10 tools per square metre. The raw materials used in the production of the lithics are mostly Cryptocrystalline Silicas (CCS) such as red and yellow jasper, and Banded Ironstone Formations (BIFS), while some quartzite was also used.

Lithics were present in a variety of environments such as the gravels and calcrete deposits. During the field survey two distinct areas with higher concentrations of lithics were noted. Note that whereas lithic densities were not markedly higher in the former, there certainly seemed to be more scatters of stone tools and manufacturing debris.

8.3.1.1 Lithic associated with gravels north-northwest of the farm homestead.

The first locality with slightly higher stone tool densities was directly west-northwest of the present farmstead and outbuildings. This locality will not be impacted by the proposed development and no mitigation is accordingly recommended.



Figure 13. Lithics recorded along gravel beds to the west of the farm house. Note typical MSA tool types such as triangular (convergent) flakes.

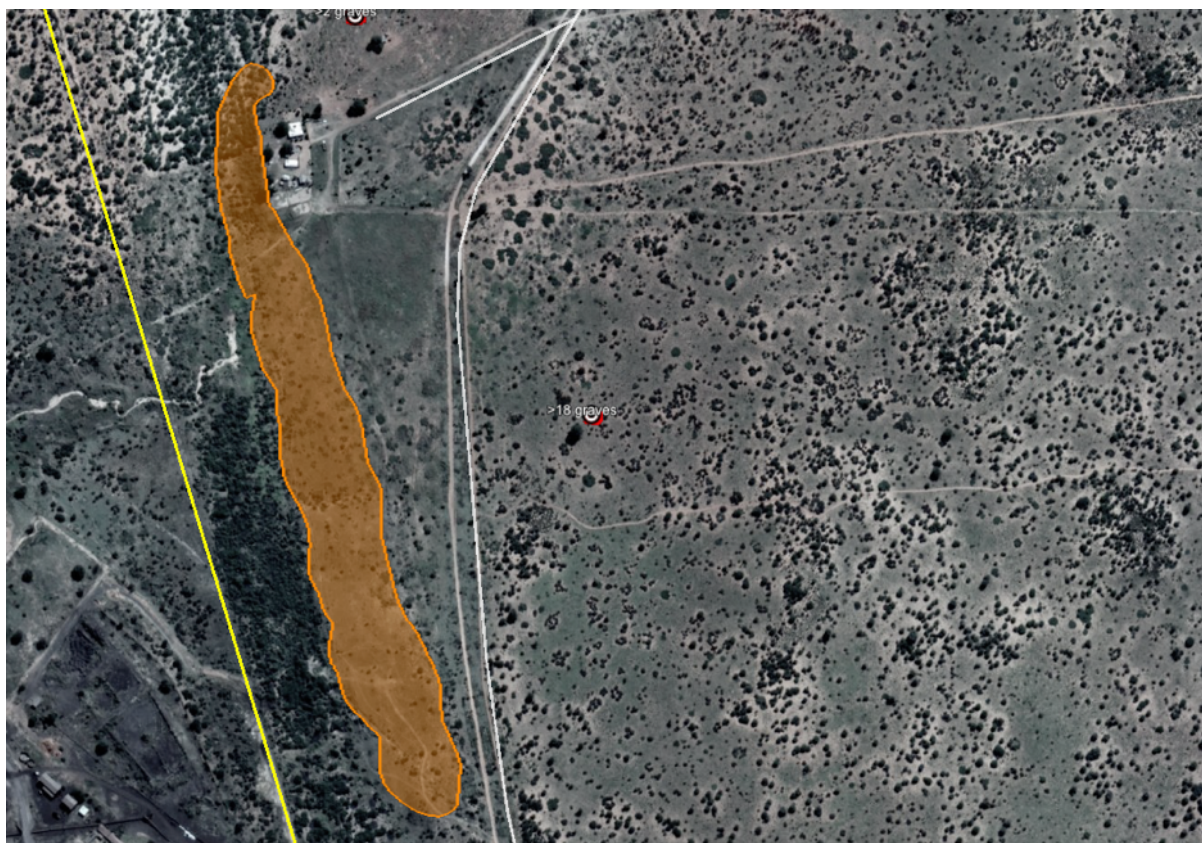


Figure 14. Detail of the distribution of lithics to the west and south west of the existing homestead

8.3.1.2 Lithic associated with calcrete ridges along the Ga-Mogara River

The highest densities and variety of stone tool types were recorded along the south-western boundary of the farm with the Ga-Mogara River. Tool types associated with all three occupation sequences of the southern African Stone Age occur across this area. A small MSA stone tool production area of approximately 400m², dominated by cores, primary cortical flakes and secondary flakes, blade forms and triangular flakes was recorded at 27°10'33"S; 22°55'00"E.



Figure 15. A collection of MSA tool types from concentration at 27°10'33'S; 22°55'00'E. Note typical MSA examples such as blade forms, and also several convergent flakes in the top row that were evidently knapped from prepared cores.

Further along the same ridge another area that exhibits stone tools clustering was noted.



Figure 16. A collection of MSA tool types that were apparent in a constrained area.

The zone with stone tool concentrations is in proximity to the calcrete ridge where the existing access road enters the farm. This area has been significantly disturbed during previous road building activity and calcrete borrowing. It is suggested that the new road diversion be done on the northern side of the existing road cutting to mitigate possible impacts in this area (see map where the heritage localities are indicated).



Figure 17. *ESA Large Cutting Tools and a core.*



Figure 18. *Isolated specimen of a weathered ESA Large Cutting Tool. Scale 150 mm.*

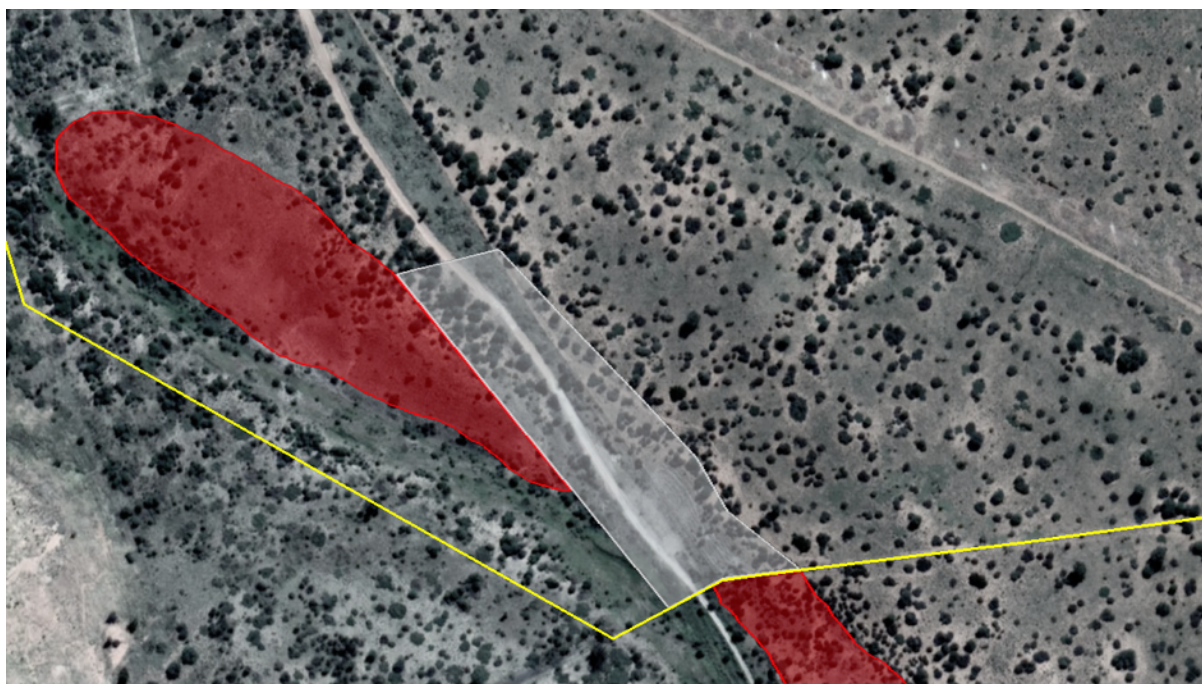


Figure 19. Distribution of lithics along the ridges of the Ga-Mogara Rive. Note that the yellow line represent the farm boundary, the grey area existing disturbance (old road construction activity) and the red the sensitive areas.

8.3.2 Informal cemeteries

Two informal cemeteries are present on the farm.

8.3.2.1 Cemetery 1 at 27°09'52'S; 22°54'53'E

Two, and possibly more, graves are located in a small cemetery in close proximity to the existing worker house. The cemetery of approximately 10 m across is enclosed by the remains of a crude fence. The graves are demarcated by a calcrete stone stacked at the head of each grave. The orientation of the graves is east-west. According to the proposed mine layout the locality falls outside the impact area. As such, these graves will not be affected by the proposed development. It is consequently recommended that the cemetery should be merely clearly demarcated and fenced.

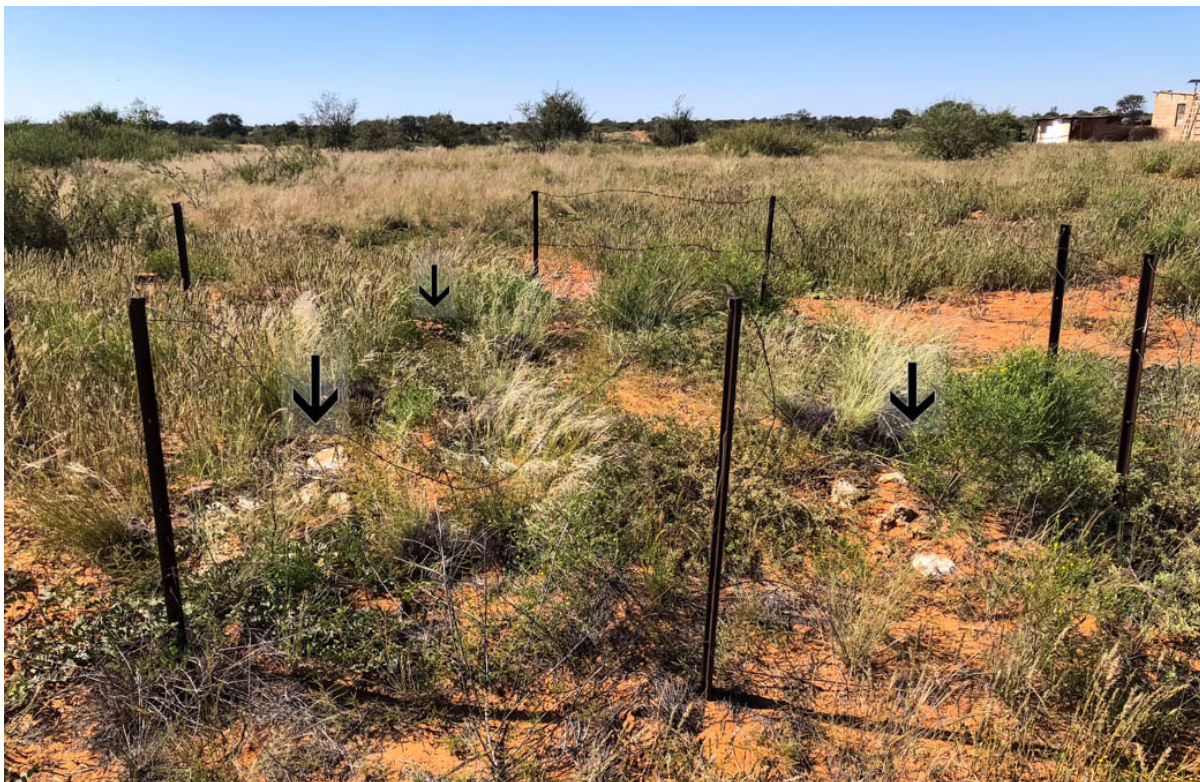


Figure 20. Cemetery 1.



Figure 21. Location of the cemetery in context of existing farm house and roads.



Figure 22. Location of the cemetery in context of proposed infrastructure.

8.3.2.2 Cemetery 2 at 27°10'07"S; 22°55'03"E

Cemetery 2 is located 500 m south-east of the farmstead on the eastern side of the existing road in close proximity to a large *Acacia erioloba x haematoxylon* tree. At this cemetery around 18 graves were recorded. Two of these have headstones of BIFs. Individual calcrete cobbles had been used to mark each of the other graves. At one of these ant bear burrowing has brought the remains of a wooden coffin to the surface.

According to the proposed mine layout Cemetery 2 falls outside the impact area. As such, these graves will not be affected by the proposed development. It is accordingly recommended that the cemetery be merely clearly demarcated and fenced.

The graves marked with calcrete cobbles have a low visibility. Note that it is not always possible to identify informal burials that lack headstones or other markers. It is therefore important that care should be taken when earthmoving equipment is used during development and to point out the importance of looking out for graves or subterranean finds.



Figure 23. Cemetery 2. Graves are defined by single unmarked headstones.



Figure 24. Remains of a probably wooden coffin brought to the surface through ant bear activity. From the wood grain it seems that the coffin was constructed from Oregon pine crate planking.



Figure 25. Location of the cemetery in context of proposed infrastructure

8.4 Grading

8.4.1 Stone tools

The few scatters of stone tools with low densities of lithics and the isolated specimens located during the survey are of low cultural significance for their scientific value. No grading is deemed necessary.

8.4.2 Cemeteries 1 and 2

Graves are deemed to have high cultural significance for their social value. The two cemeteries with graves are accordingly graded as Grade IIIA resources. From consultations with the local farm workers it seemed that the graves have not been visited by any relatives. This is borne out by a complete lack of grave offerings.

9 Assessment of impacts

Several previous surveys concluded that the immediate cultural landscape around Hotazel has low significance based on aesthetic, historical and social value (PGS 2013a, 2013b; Orton 2016; van Schalkwyk 2010, 2016). The literature research, interrogation of digital maps and the fieldwork conducted for the survey under review concur with this view. The possibility of discovering significant Stone Age material during the development work is therefore low.

However, mitigation measures for the cemeteries located during the field work are imperative as pointed out above. Should any more graves or buried archaeological sites be uncovered during earthmoving, all activities must be stopped. A heritage practitioner should be informed of the finds for assessment and advice on how to proceed.

10 Assumptions and limitations

The field study surveyed the surface only, a procedure that cannot locate buried archaeological and/or palaeontological sites. While not detracting by any means from the extensiveness of the fieldwork undertaken by the authors, it is necessary to point out that heritage resources located during the fieldwork do not necessarily represent all the possible heritage resources present within the area. Various factors may account for this, such as ephemeral indications of graves, the current dense vegetation cover in some parts of the farm following on the late rains, and the subterranean nature of certain archaeological sites that are buried through sediment accumulations.

11 Historical overview of the study area

The following section provides a brief synthesis of the cultural succession of settlements within the southern African archaeological context.

11.1 Stone Age

Archaeological traces in the form of mostly stone tools suggest a widespread presence for tool-producing Plio-Pleistocene hominins¹ in southern Africa. This important part of the prehistory of southern Africa, known as the Stone Age, is chronologically divided into the Earlier (ESA) (>² 2 million years ago - 200 000 years ago), the Middle Stone Age (MSA) (300 000 years ago – >20 000 years ago) and Later Stone Age (LSA) (<40 000 – historical period). Each of the sub-divisions is formed by a group of industries where the assemblages share attributes or common traditions (Lombard et al. 2012).

The australopithecines were gradually displaced by *Homo habilis*, a genus that evolved into the more advanced *Homo ergaster/erectus* by 1.8 million years BP. The large stone cutting tools associated with these hominins form part of the Oldowan and Acheulean industries of the ESA. Most ESA localities with stone tools in South Africa are associated with the hominin species known as *Homo erectus*, and

¹ The term hominin instead of the previously customary term hominid, acknowledge that African apes, including human ancestors, are closer to each other phylogenetically than any of them are to orang-utans (Mitchell 2002a). The term hominid includes all the higher primates (chimps, gorillas, orang-utans, ancestral human types and ourselves), while hominin refers to those genera which evolved **after** the split with the chimps.

² < = less than; > = greater than.

the more recent ESA assemblages with archaic *Homo sapiens species*.

By 250 000 years BP, the large cleavers and hand axes of the ESA were discontinued and were replaced by a larger variety of smaller tools and weapons of diverse shapes and sizes, made by different techniques. This change in technology marks the beginning of the MSA. During the MSA early humans still settled in the open near water sources but also in caves and shelter localities. The MSA marks the transition from the more archaic *Homo* species to anatomically modern humans, *Homo sapiens sapiens* (Jurmain et al. 2013). Following on the ESA, the MSA typologies represent greater specialization in the production of stone tools, in particular flake, blade and scraper tools and also in a more extended range of specialized, formal lithic tool types. This period is characterized by regional lithic variability, evidence for symbolic signalling, polished bone tools, portable art and decorative items. Prepared cores were commonly used so that flaked products often retain the characteristic faceted striking platform that derives from this technique. The main developments during this period are cognitive, cultural and physical modernity.

The LSA is marked by a series of technological innovations, social transformations and also noticeable demographic changes (Mitchell 2002a). During the LSA small (microlithic) tools, bone tools and weapon armatures and a range of decorative items as well as rock art were produced. These hunter-gatherer societies relied to a large extent on bow-and-arrow hunting with poisoned tips, and also snaring. Ceramics were used and/or produced by hunter-gatherers and Khoekhoe herders towards the terminal phases of the LSA over a period of around 2000 years.

Occupation of the interior during the historic past by hunter-gatherer (Bushmen) groups has been well-documented by travellers (Truter & Somerville 1799-1802 [Bradlow 1979]; Campbell 1815, 1822; Lichtenstein 1815; Burchell 1822-1824 [Burchell 1953]; Andrew Smith 1834-36 [Lye 1975]), and missionaries (Butler 1984). The Bushmen of the region were not homogeneous groups but spoke several dialects.



Figure 26. A painting by William Burchell (Reprinted 1953 Vol. II Frontispiece) of a Bushman kraal on his visit to the interior 1822-1824.



Figure 27. A painting by William Burchell (Reprinted 1953 Vol. II Plate 5) of a herder kraal on the banks of the Gariiep River made during his visit to the interior 1822-1824.

11.2 Rock art

The ubiquitous presence of hunter-gatherers and pastoralists on the landscape is demonstrated by the number of significant rock art localities in the Northern Cape that contain paintings and numerous

engravings. It is universally accepted that the landscape featured importantly in the selection of suitable surfaces to make rock markings (Deacon 1988; Morris 2012; Hollmann 2017).

11.3 Iron Age

The migrations into southern Africa and expansion of Early Iron Age (EIA) African farming societies are apparent from AD 400 onwards. Pioneer Sotho-Tswana and other ethnic groups settled in semi-permanent villages, cultivated a range of crops, raised livestock, made ceramic containers, mined ore and smelted metals and engaged in trade or barter. The Late Iron Age (LIA) was accompanied by aggregations of large numbers of communities that were often marked by extensive stonewalled settlements, or enclosures demarcated with poles and brushwood. The remains of the early 19th century Tlhaping capital Dithakong, located near the modern village of Dithakong, are in the form of extensive stone-built enclosures.

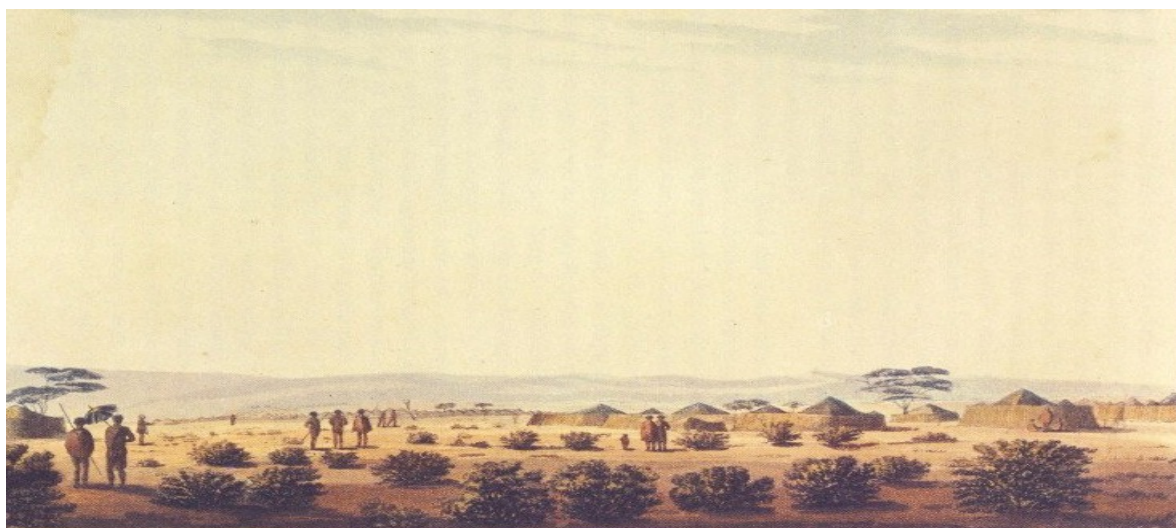


Figure 28. A painting by William Burchell (Reprinted 1953 Vol. II Plate 4: 26) of his initial view of Dithakong on his visit to the interior 1822-1824.

Sotho-Tswana groups were widely distributed across the Transgariep region at the end of the 18th century (De Jong 2010). Accounts by early travellers and missionaries are a valuable record of the settlement patterns, political systems and socio-economic practises of these groups. Iron and copper objects, specular haematite and glass trade beads recovered from excavations provide evidence for trade within communities and through wider regional networks. The southern divisions of the Tswana moved started to move from the north during the early 1600s into the area now known as the Northern Cape. A history of cultural interaction between the Sotho-Tswana chiefdoms of the Rolong, Tlharo and Tlhaping with the northward advancing remnants of Khoikhoi and San mainly dates to the

late 18th century.



A sketch of some Tlharo made during the travels of Dr Andrew Smith and companions on their 1834 travels into the interior (Lye 1975: 171).



Tlhaping women cultivating their gardens — a sketch made during the travels of Dr Andrew Smith and companions on their 1834 travels into the interior (Lye 1975: 171).

Figure 29. Sketches of Tswana tribes made around 1834.

11.4 The historical period and the recent past

Nomadic pastoralists groups such as Khoekhoe herders kept livestock of cattle and sheep, and later goats. Griqua society and settlements organized in loose villages developed on the north bank of the Orange/Gariep River from groups of families who settled there during from roughly 1780 following on their displacement from their ancestral lands (Ross 1974: 30). The Rev. John Campbell amalgamated the Griqua around Griqua Town into a more coherent entity in 1813, but this fragile unity would soon splinter into several factions. They tended their herds, hunted and some also took part in trade. The Griqua moreover absorbed local people such as the San as dependents. There were also autonomous settlements of Griqua families with claims to individual fountains or pans who retained loose links with the Griqua leadership. The Griqua state emerged in the course of the 1820s and 1830s after Andries Waterboer united the Griqua in 1819. The decline of the Griqua hegemony dates from the middle of the 19th century. They were challenged by the Sotho-Tswana groups; secondly by a broad coalition of missionaries; and lastly by the farmers of the Great Trek who began to consolidate a white-ruled state in Transorangia.

The first white settlers to move into the region from the early 18th century onwards were frontiersmen, hunters, traders, missionaries and farmers. The goal of white supremacy in southern Africa resulted in conflict, the exclusion of non-white groups and transformation of traditional political and economic systems.

11.5 Geology

11.5.1 Prehistoric importance of geological formations

The BIFs that are present throughout the Northern Cape occur in the form of striking finely layered sediments of alternating bands of iron minerals such as haematite, and fine-grained chalcedonies of various colours. These sediments reflect the initial accumulation of free oxygen in the oceans as a consequence of Cyanobacteria that produced oxygen through photosynthesis during the Early Proterozoic interval between 2.5 and 2.4 billion years ago (Almond & Pether 2008). These micro-organisms, or blue-green algae, represent the earliest known form of life on the Earth. The fine sedimentary banding probably resulted from fluctuations in oxygenation, with corresponding iron solubility, in shallow waters. The bands of BIFs extend over great distances.

During the prehistorical period the BIFs and the extensive manganese deposits that are mined between Postmasburg and Hotazel served as an important source of toolstone for the manufacture of a range of lithics. The remarkable high densities of ESA and MSA stone tools in the Kathu region result from the intensive exploitation of outcroppings of BIFs around Kathu. The outcroppings at Kathu Townlands are dominated by chert and show no fine-scale banding. The structure of these rocks is therefore ideal for stone tool manufacture (Walker et al. 2014).

Specular haematite was highly prized as a cosmetic by hunter-gatherers, Khoekhoe pastoralists and African farmers. It was an important item of barter, and widely traded. Several localities with surface bodies of specularite were mined in pre-European times and during the historical period (Beaumont & Boshier 1974). The well-known specularite mines of Tsantsabane/Blinkklipkop/Gatkoppies and Doornfontein 1 (Lichtenstein 1815; Dunn 1931; Campbell 1822: Vol II; Burchell 1953) near Postmasburg that were quarried extensively over a long period of time have been archaeologically investigated (Beaumont & Boshier 1974; Thackeray et al. 1983; Beaumont & Morris 1990; Mitchell 2002a). The Tsantsabane mine is the most important prehistoric specularite mine in South Africa.

11.5.2 Recent geology and mining

As early as 1906 a Dr A.W. Rogers published a record of the geology of present-day Botswana and Griqualand West as part of the annual report of the Geological Commission of the Cape (PGS 2013b). Rogers established that the well-known hill from the area known as Black Rock consisted largely of manganese, a mineral ore previously undiscovered in the Cape Colony (PGS 2013b). Prospectors such

as Fincham initially failed to convince mining companies of the importance of the manganese deposits. In 1940 Associated Manganese Mines of South Africa acquired the manganese outcrop known as Black Rock and shortly afterwards began mining the deposit (Cairncross & Dixon 1995). A small town developed in 1959 (Hocking 1983). Early manganese mining in South Africa commenced at the original Black Rock mine. The mining techniques used were both open-cast and underground mining.

The following extract from a palaeontological study (for the proposed Hotazel Solar Park on the farm Hotazel Annex Langdon F278/0), by Dr John Almond (2016: 1) provides a synopsis of the palaeontology for the immediate area:

It is largely underlain by Quaternary to Recent aeolian (wind-blown) sands of the Gordonia Formation (Kalahari Group). Deep borrow pits and mining excavations in the region show that the surface sands are underlain by a series of thick calcrete hardpans (Mokolanen Formation) as well as locally by consolidated sandy and gravelly deposits of the Kalahari Group. The calcretes crop out at surface along the Ga-Mogara River to the west of Hotazel. The Gordonia sands are themselves only very sparsely fossiliferous, while the only fossil remains recorded from the calcretes beneath them in the Hotazel region are locally abundant, low-diversity invertebrate burrows as well as casts of plant rootlets and of reedy vegetation preserved in subsurface calcrete hardpans. Such trace fossils are of widespread occurrence within the Kalahari region. Impacts on them are likely to be of low significance and special mitigation measures to protect them are not considered warranted.

Almond (2016: 1) assessed the overall impact significance to be very low with small local pockets of high sensitivity that might occur around pans and drainage lines, and then in particular within drainage lines of the Ga-Mogara River.

12 Heritage context

A great many archaeological and heritage surveys have been previously conducted in the general region to record and mitigate heritage resources prior to development, in particular mining and currently the alternative energy installations. A large number of heritage reports have been compiled. A lesser number of AIA and HIA assessments have been conducted within the immediate Hotazel area.

The Northern Cape is now an arid region with limited sources of surface water. The environmental resources of the region have been utilized from the earliest phases of the southern African Stone Age over a very long period of time, and during fluctuating climates, by successive groups of people as is

evident from the high densities of archaeological sites that have been recorded in this region. The archaeology of the Northern Cape is dominated by millions of stone tools that derived from very early occupations by stone tool-manufacturing hominins up to the intensive utilization of the region by hunter-gatherers until the recent past.

The Hotazel area does not display the same prolific spread of tool tools that characterise the Kathu areas. Around Hotazel low levels of stone tools occur dispersed, and concentrations are mainly found close to sources of water. The archaeological material in the form of weathered and patinated tools often occur mixed on deflated surfaces, but iconic MSA and LSA tool types do hint at the ages of some of these occupations. The Kathu sites, on the other hand, comprise remarkable and highly significant archaeological assemblages from the ESA, the intermediate Fauresmith that contains elements of the transition between the ESA and the MSA at ca. 500 000 years ago, and also vast MSA assemblages. The Kathu Grade 1 Heritage Site that consists of nine localities, Kathu Townlands, Kathu Bestwood, Kathu Uitkoms and the various Kathu Pan locations, demonstrates the scientific and heritage significance of the archaeological heritage of the region (Porat et al. 2010; Chazan et al. 2012; Wilkens & Chazan 2012; Walker et al. 2013; Walker et al. 2014).

The following is a synopsis of some of the HIAs and AIAs conducted around the Hotazel area:

- ASHA Consulting (Pty) Ltd (2016) conducted a scoping assessment to record and assess potential impact to likely heritage resources for the proposed development of the Hotazel Solar Farm on the farm Annex Langdon 278 near Hotazel in Northern Cape. They reported a generally low level of cultural resources.
- JG Afrika (2016) in a Draft Scoping Report for the proposed development of a slimes handling and bulk water storage facility at Hotazel Manganese Mamatwan Mine near Hotazel, reported that whereas several HIAs and AIAs had been previously undertaken in the general area of Mamatwan Mine, the majority of the surveys found no heritage sites, low significance occurrences of stone tools and also some recent historical structures. The general consensus is that the area is of low archaeological significance.
- Van Schalkwyk (2010, 2016) found no heritage resources in the locations that he investigated, namely for the Hotazel township and also the proposed Kagiso Solar Power Plant.
- Hutten & Hutten (2015) reported low levels of stone artefacts along the margins of rivers such as the Kuruman. These comprised mostly Middle Stone Age (MSA) lithics and some Later Stone Age (LSA) material.

- Paleo Field Services (2015) similarly encountered little evidence for heritage resources and concluded in their scoping for the 40478 Vaal-Gamagara water pipe line footprint that the study area was not regarded as archaeologically sensitive.
- PGS (2013a) in an assessment for the proposed Lehating underground manganese mine too recorded that the sandy areas did not contain archaeological or cultural materials.
- PGS (2013b) in an HIA conducted for Nsimbintle Mining (Pty) Ltd in view of prospecting activities on the farm Gloria 266 near Hotazel, again demonstrated a preponderance of MSA and LSA lithics along riverine edges. Only two MSA sites were identified during the field work. They reiterated that the overall impact of the development on heritage resources is low and that impacts can be mitigated to acceptable levels.
- Hatch (2013) in their report following on a Phase 1 HIA for the manganese rail from Hotazel to Kimberley and De Aar to Port of Ngqura — therefore a very extensive area — identified several significant heritage resources and cultural landscapes.
- Paleo Field Services (not dated) in a Phase 1 HIA for two proposed new power lines at Witloop and Vlermuislaagte between Hotazel and Kathu, recorded only surface scatters of lithics of low significance.
- Archaeoetnos (2012a) undertook scoping for the proposed development of a photo-voltaic solar power generation plant on the farm Adams 328 near Hotazel. They recorded a MSA core but no other stone tools. A hostel associated with earlier mining on the farm was said to be less than 60 years of age.
- Archaeoetnos (2012b) in an HIA for the proposed Main Street 778 (Pty) Ltd mining right application close to Hotazel, documented 11 sites of historical cultural significance. These included farm houses and associated structures from around the 1920s, several cemeteries associated with the earlier occupants of the farms that were surveyed and a school dating to the 1920s.
- De Jong of Cultmatrix (2010) undertook a HIA for the proposed land use change to provide for the extension of the town of Hotazel. No heritage resources were found.
- At Black Rock a large cemetery for mine workers and a small informal burial place with three graves were recorded (Küsel 2009). ESA and MSA stone tools and lithic debris were documented at a large quarry on the banks of the Ga-Mogara River (Küsel 2009).
- Matakoma Heritage Consultants (2005) in a scoping report for the Hotazel Manganese Mines Wessels Mine reported a lack of any sites of heritage value.

12.1 Rock art

Steele (1988) reported on rock engravings north-west of the main Kuruman and Hotazel road. Some were made on dolomite slabs outcropping on the banks of a dry donga while the bulk of the engravings were on the west bank. The pecked engravings comprise meandering lines, settlement patterns, circles and crosses, cattle, horses, mounted horsemen, crude birds, goats and small antelope. The author noted that many of the engraved motifs followed the algal stromatolite contours on the dolomite.

13 Conclusions and recommendations

The literature study indicated a low level of heritage resources around Hotazel and within the immediate landscape. Prehistoric and historical utilization of the region focussed mostly on sources of water such as the Ga-Mogara River, springs and pans. During the current field survey traces of prehistoric utilisation and/or settlement were mainly found in the form of dispersed lithics from the ESA and MSA, and also some LSA stone tools. All the isolated specimens and scatters of stone tools with debris that have been identified, are of low significance. While there is no objection to the proposed development of an open-cast mine and associated infrastructure by East Manganese on the Farm East 270 (Portion 1 & Re) from a heritage resources perspective, the presence of graves in two informal cemeteries that were identified during the survey has to be addressed.

13.1 Stone Age localities

Stone tools occurred mainly as finds of single specimens or low density concentrations. A small MSA stone tool production area dominated by cores, primary cortical flakes and secondary flakes, blade forms and triangular flakes was recorded at 27°10'33'S; 22°55'00'E. Another concentration was located further along the ridge. This is in proximity with the point where the existing access road enters the farm. In this locality the immediate area has been significantly disturbed during previous road building and calcrete borrowing.

It is recommended that the new road diversion be done on the northern side of the existing road cutting to mitigate possible impacts in this area. Please refer to the map where the heritage localities are indicated for the details.

13.2 Cemetery 1 at 27°09'52'S; 22°54'53'E

A set of two, and possibly more, graves are located in a small cemetery in close proximity to the existing worker house. The cemetery of approximately 10 m across is enclosed by the remains of a crude fence.

According to the proposed mine layout the locality falls outside the impact area. As such, these graves will not be affected by the proposed development. Graves are deemed to have high cultural significance for their social value. The cemetery with graves is accordingly graded as a Grade IIIA resource. It is recommended that the cemetery should be clearly demarcated and fenced.

13.3 Cemetery 2 at 27°10'07'S; 22°55'03'E

From consultations with the local farm workers it seemed that the graves in Cemetery 2 have not been visited during the recent past by any relatives. This is borne out by a complete lack of grave offerings.

According to the proposed mine layout Cemetery 2 with around 18 graves falls outside the impact area. As such, these graves will not be affected by the proposed development. Graves are deemed to have high cultural significance for their social value. The cemetery with graves is accordingly graded as a Grade IIIA resource. It is recommended that the cemetery should be clearly demarcated and fenced.

13.4 Possible finds emanating from the development

In the event that any sub-surface heritage resources or graves are unearthed all work has to be stopped until an assessment as to the significance of the site (or material) in question has been made by a heritage practitioner. Note that no archaeological material that has been uncovered may be removed. This applies to graves and cemeteries as well. In the event that any graves or burial places are located during the development, the procedures and requirements pertaining to graves and burials will apply. If human remains are uncovered, or previously unknown graves are discovered, a qualified archaeologist needs to be contacted and an evaluation of the finds made. If the remains are to be exhumed and relocated, the relocation procedures as accepted by SAHRA need to be followed. This includes an extensive social consultation process.

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