1st phase H.I.A. of a proposed extension and upgrading,

also known as

THE SISHEN IRON ORE MINE EXPANSION PROJECT

For Sishen Mine

Project code: SIS-SIS-22-04-25 **August 2022.**

General bird-eyes view of the modern impact of the Sishen Iron Ore Mine over the last 70 years.

Project coordinator: - Shangoni management services.

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"Of the earth, for the earth"

SHANGONI
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Declaration of independence.
This report has been compiled by Siegwalt Kūsel and Sidney M Miller. 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 the appointment was made other than fair remuneration for work performed in connection with the activity or application.

Provisional indemnity.
We Siegwalt Kūsel and Sidney M Miller hereby declare that all reasonable steps were taken to identify the heritage resources on the property under investigation. For obvious reasons heritage remains that occurs/occurred underground cannot be vouched for. In the event of such remains being uncovered during the mining operations work should be stopped and a heritage practitioner or the heritage authorities must be informed. The cost of such new investigation will be for the account of the client.

	
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[Note that a copy of the report must be lodged with SAHRA as stipulated by the NHRA (Act No. 25 of 1999), Section 38 (particularly subsection 4).]

Contents

List of Figures.

List of acronyms.

AIA	Archaeological Impact Assessment.		HMF	Heritage Management Framework.
ASAPA	Association of Southern African Professional Archaeologists.		AIA	Archaeological Impact Assessment.
BAR	Basic Assessment Report.		HMP	Heritage Management Plan.
BP	Before Present.		ICOMOS	International Council on Monuments and Sites.
BIF	Banded iron formation.		LIA	Late Iron Age.
CFP	Chance Finds Procedure.		LMS	London Mission Society.
CRM	Cultural Resources Management.		LOM	Life of Mine.
DEA	Department of Environmental Affairs.		LSA	Later Stone Age.
EAA	Environmental Authorisation Application.		MPRDA	Mineral and Petroleum Resources Development Act (No. 28 of 2002)
EAP	Environmental Assessment Practitioner.		MSA	Middle Stone Age.
EIA	Early Iron Age.		NCP	Northern Cape Province.
ESA	Early Stone Age.		NEMA	National Environmental Management Act (No. 107 of 1998)
ECO	Environmental Control Officer.		NHRA	National Heritage Resources Act (No. 25 of 1999)
EMPr	Environmental Management Programme.		PHRA	Provincial Heritage Resources Authority.
EIA	Environmental Impact Assessment.		SAHRA	South African Heritage Resources Agency.
FLS	Fellow of the Linnean Society.		SAHRIS	South African Heritage Resources Information System.
GIS	Geographic Information System.		SIOM	Sishen Iron Ore Mine.
GPS	Global Positioning System.		TOR	Terms of Reference.
HIA	Heritage Impact Assessment.		YA	Years Ago.

Archaeological remains can be defined as any features or objects resulting from human activities, which have been deposited on or in the ground, reflecting past ways of life and are older than 100 years.

Conservation as used in this report in relation to heritage resources, "includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance" ***(National Heritage Resources Act (NHRA) 1999: Act 25:2iii).***

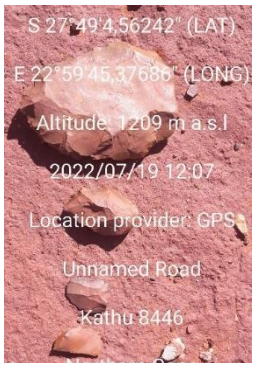
Cultural significance means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance" ***(NHRA 1999: Act 25:2(vi).)***

Development means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being" ***(NHRA 1999: Act 25:2(viii).)***

Heritage: Heritage resources have lasting value in their own right and provide evidence of the origins of South African society. They are limited and non-renewable. The National Heritage Resources Act section 32, p. 55 defines these as "An object or collection of objects, or a type of object or list of objects, whether specific or generic, that is part of the national estate and the export of which SAHRA deems it necessary to control, may be declared a heritage object".

1. Executive summary.

This Phase 1 Heritage Impact Assessment (HIA) was conducted for the 2022 proposed expansion of SIOM as described below. The authors of this report are confident that the heritage resources, of the property under review, were adequately documented and assessed during the Phase 1 HIA.



A localised exposure of a mixture of two ESA hand axes, a small number of typical lumps, cores and blades of MSA material and a few small LSA blades was located scattered in an old quarry pit. Photos taken at **9588** (27°49'3.07"S, 22°59'45.15"E), **8101** (27°49'2.85"S, 22°59'45.63"E) and **4935** (27°49'4.56"S, 22°59'45.37"E) show were some of the lithics were found.

As the lithics are a mixture from different stone age periods, they are considered to be out of context. Also, that the quarry excavation (of unknown date) is responsible of the uncharacteristic mixture and distribution on the pit floor.

Figure 1. *A small number of lithics were found,* ***(Photo, S.M. Miller, 2022.)***

The site is afforded a field rating of Grade IIIC, Not Conservation Worthy (NCW) and has been adequately documented as part of this Phase I Assessment. It is recommended that the site be granted destruction authorisation at the discretion of the relevant heritage authority outside of the formal permitting process. ([1]).

If the exclusion site is to be impacted upon by alternative 2 of the HME Park-up, then it is required that a second phase study is initiated and an official demolition permit is acquired.

It is expected that the study area will not yield subsurface heritage or burial sites. However, in such an event, the Change Find Procedure (CFP) must be implemented and the heritage authorities informed.

Siegwalt U Kūsel & Sidney M Miller.

2. Terms of Reference.

Shangoni Management Services (Pty) Ltd (Shangoni) appointed S. U. Küsel and S.M. Miller as independent specialists to conduct a Phase 1 HIA. This HIA is conducted for the 2022 proposed Sishen Iron Ore Mine Expansion Project ***(project code: SIS-SIS-22-04-25)*** that is mainly aimed at iron ore extraction for the international market.

It consists of several components on, to the west of and to the south of the existing mine. At present the mine, that has been in existence for seventy years, is footprinted over an extensive area covering the farms Sacha, Sims, Sekgame, Gamagara, Sishen, Doornvlei, Bruce and Lylyveld south of Kathu in the Northern Cape Province

The new areas comprise the following areas: -

1. An enlargement of the existing tyre storage yard.
2. An enlargement, and renewal of the Moolman's refuelling area
3. A realignment of the existing pit rim.
4. A new Area 19.
5. A new Area 21.
6. An enlargement of the Lylyveld pit.

[1] ***See Addendum 10, figures 40 to 44, for full record of the lithics identified.***

3. Study Area.
(For full details of the study area see Addendum 1.)

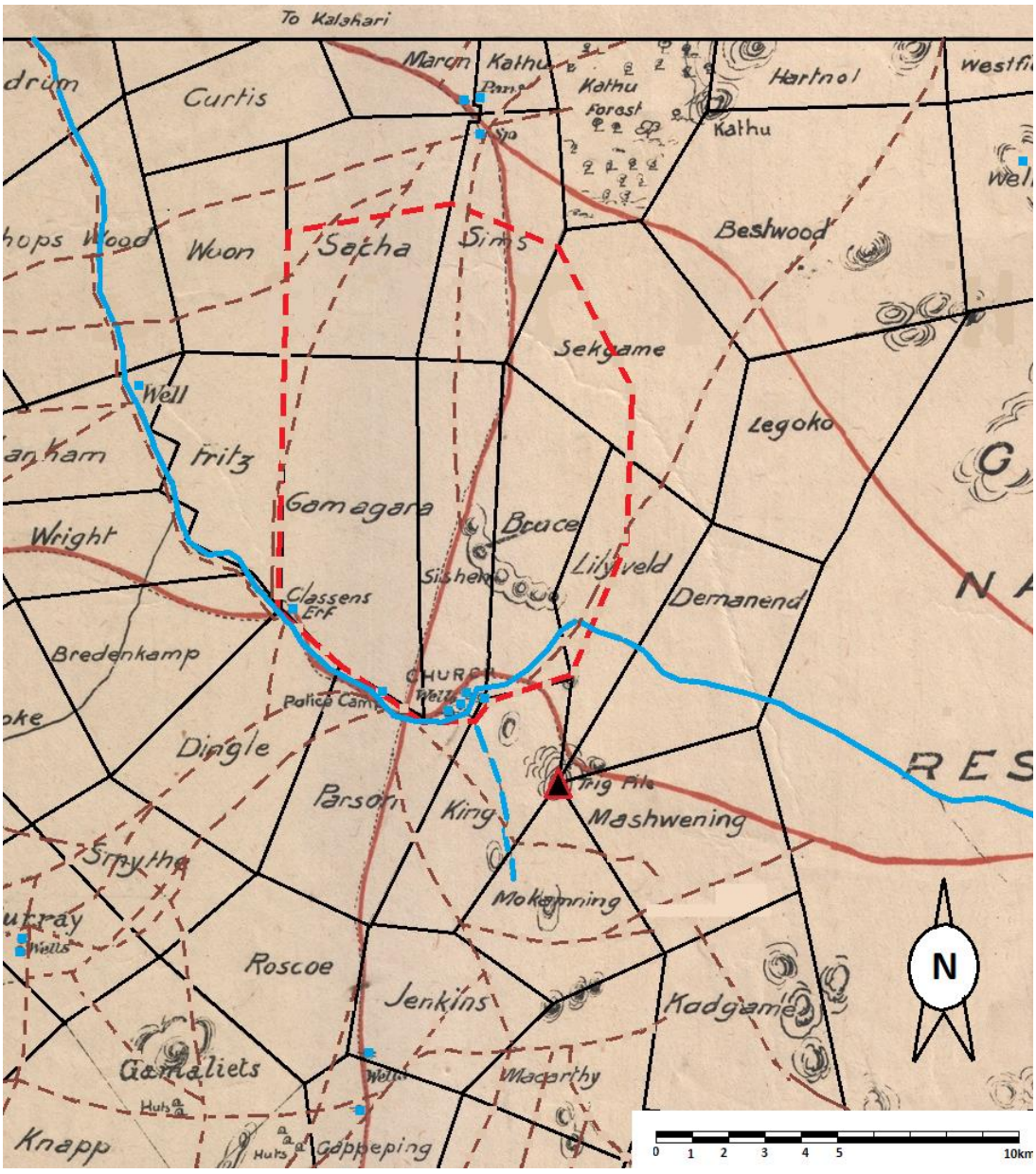


Figure 2. *The general footprint of the Sishen Iron Mine.* ***(Image is an annotated portion of the British Imperial map Mount Huxley, 1901.)***

The SIOM is located over the traditional farms Woon, Sacha, Sims, Sekgame, Gamagara, Sishen, Bruce and Lilyveld and its footprint is outlined in a broken red line above. Note the low presence of water sources in the footprint 120 years ago, as well as only three wagon trails crossing the farms. Also note the only permanent settlements in this area is around Kathu Pan in the north and along the Gamagara Drainage line in the South. These are the farmhouse of "Classens" and a "Police Camp" and a "Church". All of these sites are then only habitable owing to the wells that were excavated. ***Note that there is no area demarcated as a "Reserve" for any cultural group on these farms.***

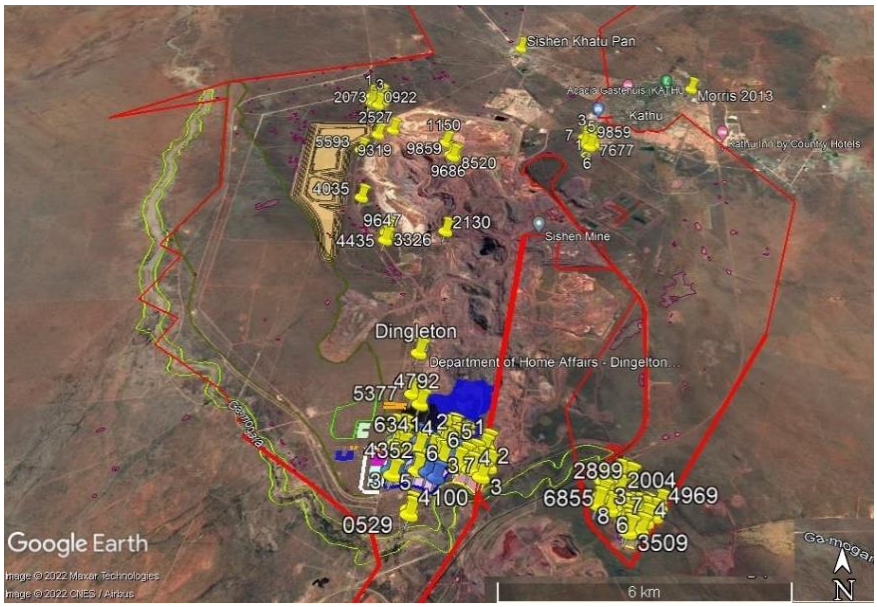


Figure 3. *The general footprint of the SIOM mining right area outlined in red. The pin markers locate the position from where the logged photographs were taken.* ***(Google Earth 2022.)*** *([2]).*

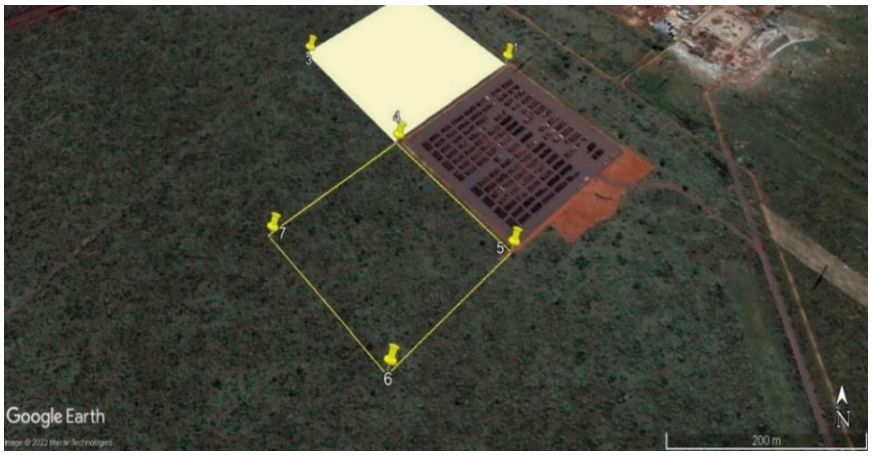


Figure 4. *Alternatives for the expansion of the tyre storage yard.* ***(Shangoni KMZ No 3, 5, 15 & 47 on Google Earth 2022*** *([3]).*

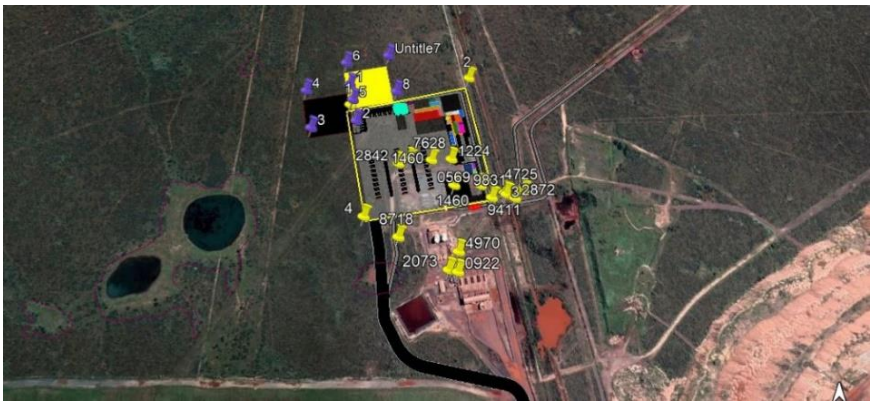


Figure 5. *Proposed expansion of the Moolman's Mechanical Facility located to the north of the present refueling facility.* ***(Shangoni KMZ No 25 to 34 on Google Earth 2022.)***

[2] For full list of the four dimensionally logged photographs see Addendum 10.

[3] For full track logging detail acquired during fieldwork see Addendum 10.

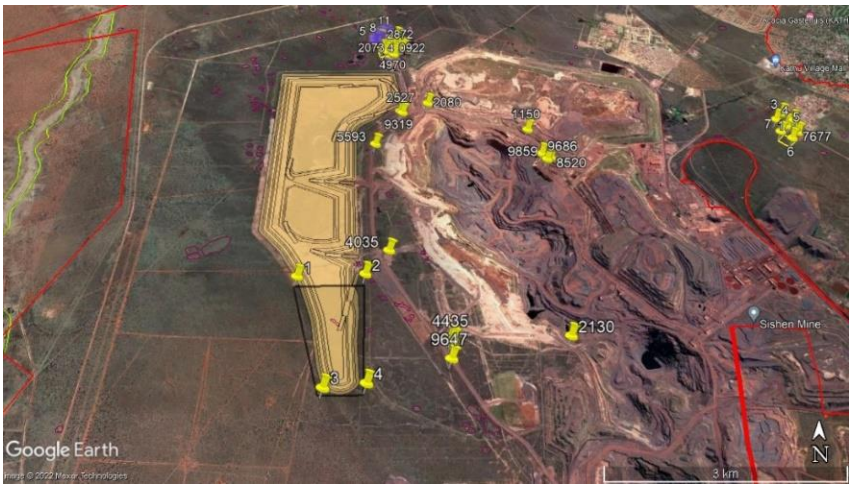


Figure 6. *Approved and Existing Western Waste Rock Dump with southern extension.* ***(Shangoni KMZ No 6 on Google Earth 2022.)***

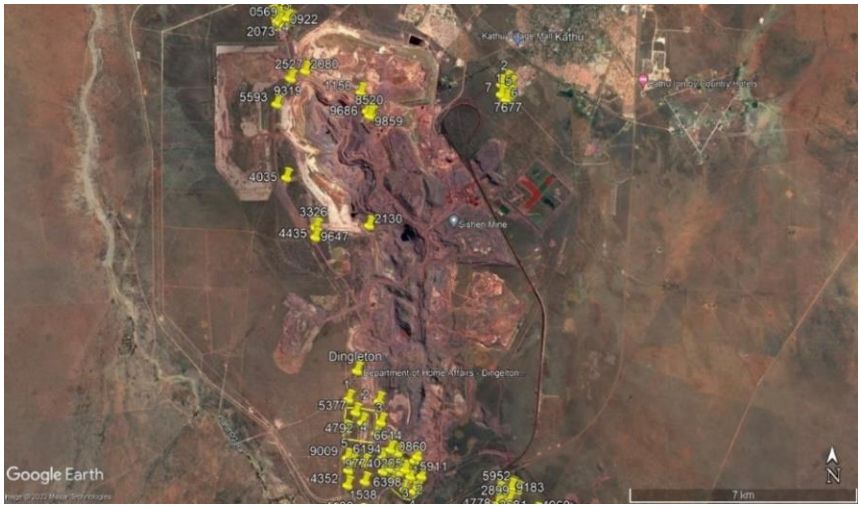


Figure 7. *Proposed extension of the SIOM pit rim. Owing to the complexity of the pit rim extension no GPS coordinates are provided.* ***(Image from Google Earth 2022.)***

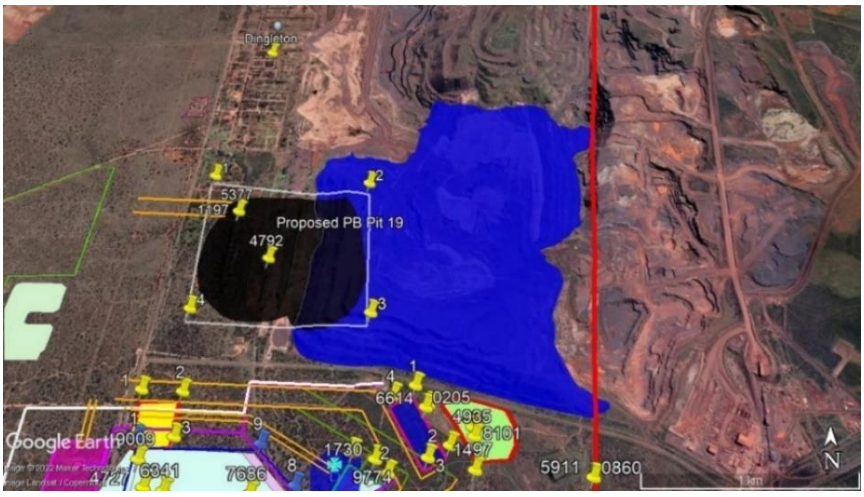


Figure 8. *The Vliegveldt Waste Rock Dump (blue), the proposed PB Pit 19 (black), the Cemetery and exclusion site (Maltese cross), the Far South Substation (pink), and the Caravan Park Area (yellow).* ***(Shangoni KMZ No 44, 54, 9 & 10, 18 and 8 on Google Earth 2022.)***

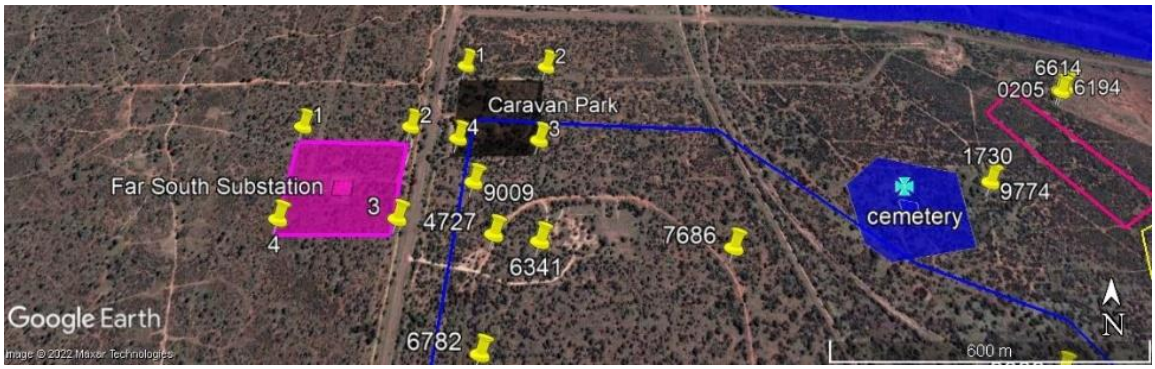


Figure 9. *Location of the cemetery and cemetery exclusion site, the far south substation and the proposed caravan area.* ***(Shangoni KMZ No 9 & 10, 18 and 8 on Google Earth 2022.)***

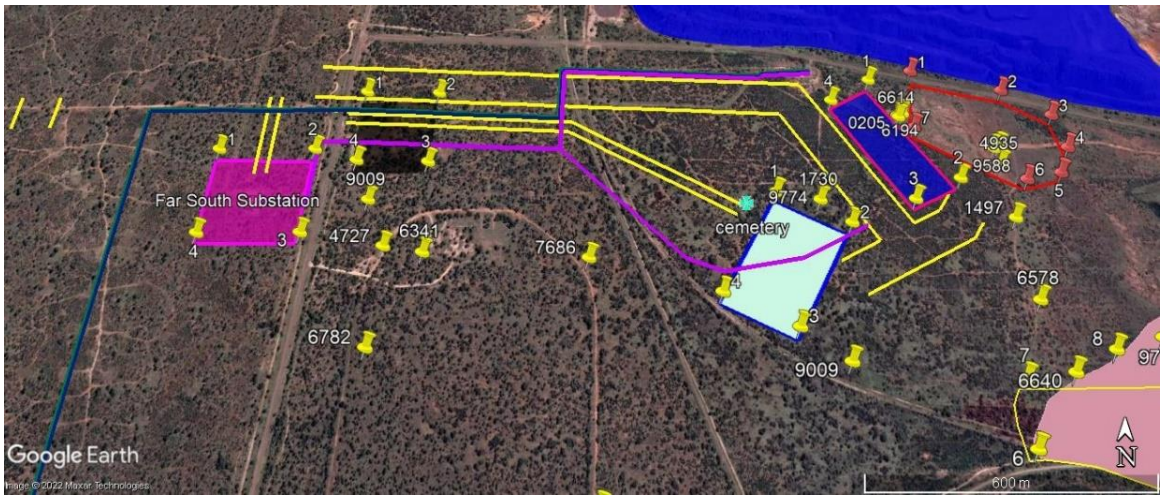


Figure 10. *Location of the Alternatives for the HME Park Up, the re-routing of road, power and pipes and the newly found lithics exclusion site of the 2022 HIA outlined in red.* ***(Shangoni KMZ No 43 & 1, and collectively No 2, 11, 12, 13, 14, 40, 46, 49 & 50 on Google Earth 2022.)***

Figure 11. *Location of the Proposed PB Pit 21 and the PB Pit 21 Proposed Backfill Area.* ***(Shangoni KMZ No 45 and 48 on Google Earth 2022.)***

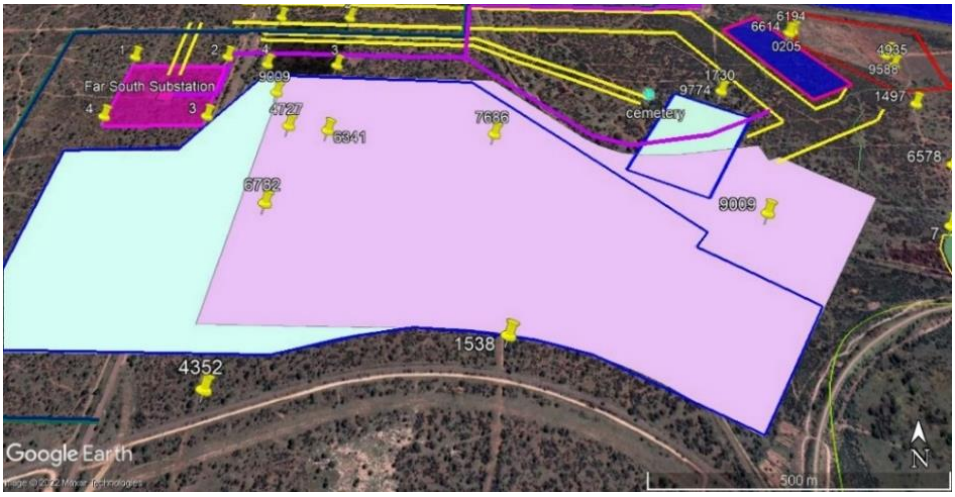


Figure 12. *The Proposed Waste Dump (pink area), and the Alternative 2 Waste Dump without backfill. (Light blue area).* ***(Shangoni KMZ No 48 and 4 on Google Earth 2022.)***

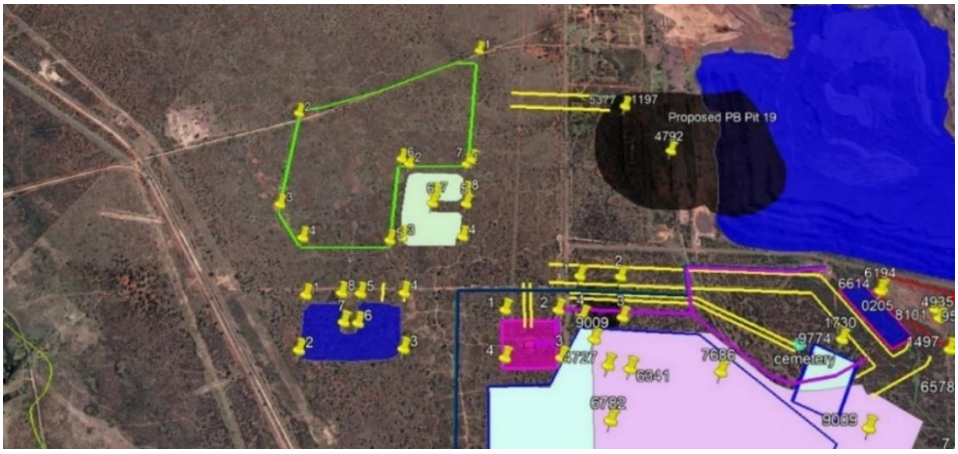


Figure 13. *The Far south alternative C & G Stockpiles the South Sub Station, (pink) and Approved Topsoil Stockpile. (Green outline)* ***(Shangoni KMZ No 16, 17 18 and 7.)***

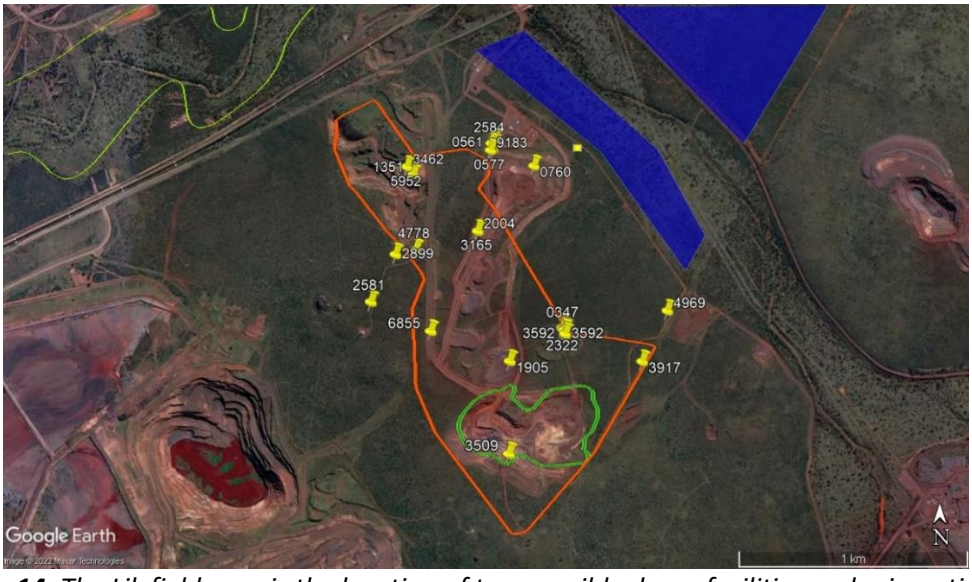


Figure 14. *The Lilyfield area is the location of two possible dump facilities under investigation and also shows a previously identified heritage site. This was revisited and a number of stone artefacts were found.* ***(Image S.M. Miller annotated from available information).***

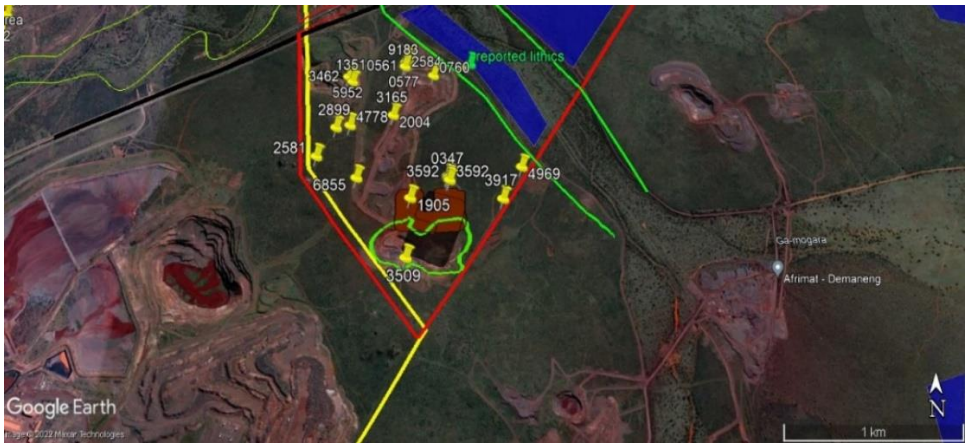


Figure 15. *Location of the Lylyfield pit facility in 2003. It also indicates the Sishen MR area (red line) and the Kumani MPR (yellow line). The road and rail further define the area to the North and the Gamagara the area to the East.* ***(Google Earth 2022.)***

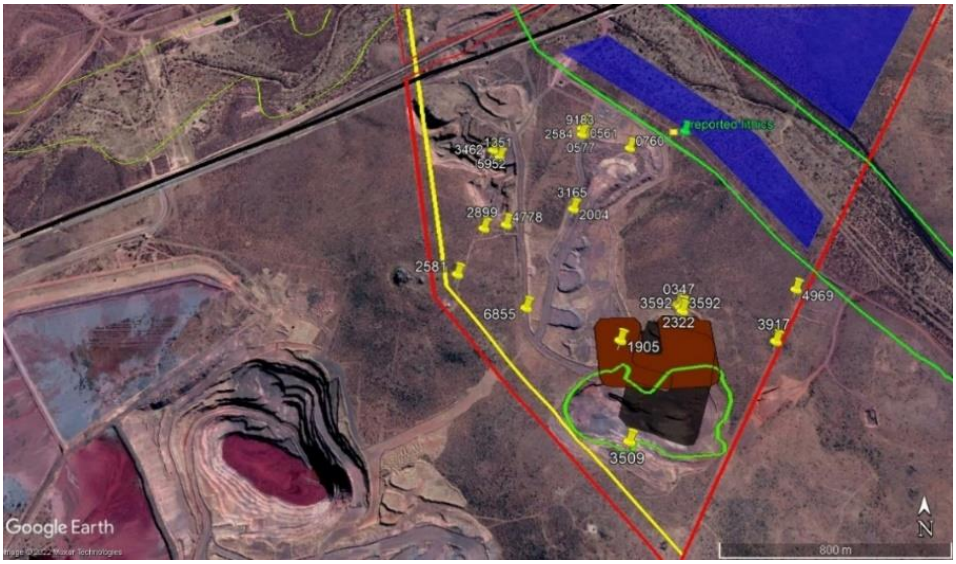


Figure 16. *The Lylyfield pit facility in 2013 showing advanced mining operation. In comparison note the speed of mining in the Kumani MR to the West.* ***(Google Earth 2022.)***

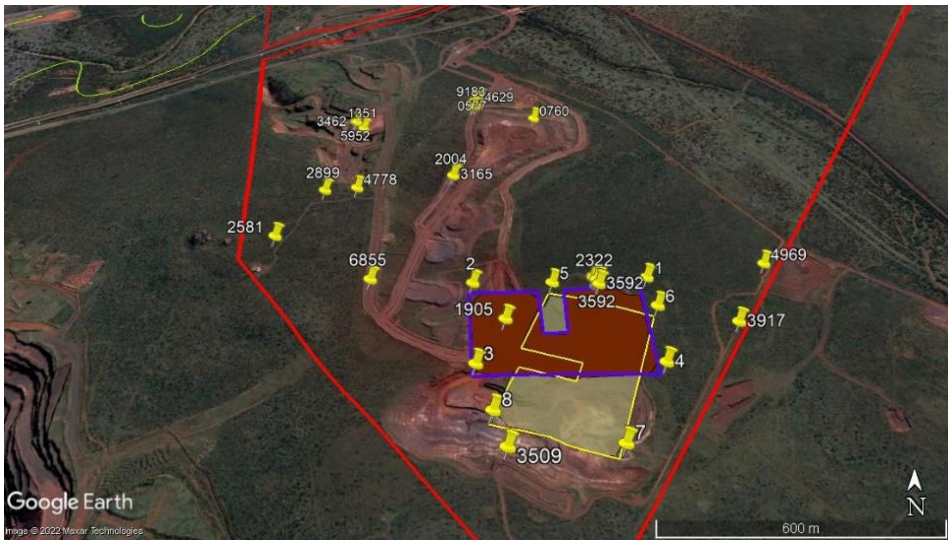


Figure 17. *The proposed extension of the Lylyfield C & G Stockpile Areas.* ***(Shangoni KMZ No 23 and 24 on Google Earth 2022.)***

5.13. Heritage Resources.

A foot survey by Dr Peter Beaumont during November 2009 from the McGregor Museum (Specialist Report included as Appendix N) revealed no important archaeological sites, Palaeontological bones, or structures (buildings or graves) of any age. Eleven jasper artefacts were found ***(Figure 18).*** These artefacts have lightly smoothed surfaces, including a core with some peripheral preparation, that are, on typological grounds, ascribed to the Fauresmith – Acheulean timespan. The artefacts are of no scientific or heritage value.

No important archaeological sites, Palaeontological bones, or structures / graves) of any age were found. The study revealed that the proposed mining will have no significant impact on the heritage resources of the Northern Cape.

Figure 18. *Jasper artefacts found on the proposed satellite opencast development site*

Figure 19. *Proof that this site has previously been surveyed in 2009 as reported in the 2010 AGES EIA. During The present 2022 survey the site was revisited by the researches and lithics found at this point confirmed Dr Beaumont's findings.* ***(Hannes Hagar 2022)***

Figure 20. *Location of Potential Irrigation Areas. None of this was surveyed for the 2022 HIA.* ***(Shangoni KMZ No 41 on Google Earth 2022.)***

4. Assessment Methodology.

4.1. Methodology.

Prior to conducting the site assessment, a desktop survey of existing literature on the wider region was conducted to assess the heritage context. These included published research articles *([4]),* unpublished reports, and other online information. The SAHRIS data base was also accessed for previous heritage reports that relate to the general region of the survey *([5]).* The heritage resources associated with the Sishen Iron Mine and its Mining Right Area as captured by the 2020 Heritage Management Plan. Draft. Rev 01 by Divan van der Merwe is also available in this report *([6]).*

The relevant topographical and historical maps *([7])* were sourced, and consulted for pointers to possible heritage resources. The study area is covered by a series of aerial photography data sets that can be used to assess the occupations of this particular landscape. Historical articles were also systematically scrutinised to identify potential sites *([8])*, areas of disturbance and vegetation or geological anomalies *([9]),* and for any evidence of structural remains, or likely areas for archaeological features.

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 and high-resolution aerial imagery, and converted to .gpx format. 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 (Datum WGS84) ([10]).***

4.2 Surveyed area.

The project site was visited on the 18th and 19th of July 2022. Owing to SIOM health & safety regulations, the heritage surveyors were transported by the mine official Hannes Hager in an official mine vehicle to all areas under survey. The total study area of all individual components is proximately 500 ha in extent. The study area and immediate surrounds were systematically searched and inspected by vehicle and on foot to identify any potential areas that could contain heritage resources. **At crucial points such as the "cemetery" in area 21 Mr Hagar of the mines environmental office also accompanied the heritage surveyors.**

5. Legislative Framework.

5.1 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 NHRA clearly defines the national estate and sets out principles for the management of heritage resources, determines the constitution, powers, functions, and duties of heritage

[4] See Addendum 3, Kathu Pan: -Location and Significance.

[5] See Addendum 1. Heritage studies Undertaken by Sishen mine Prior to 2022.

[6] See Addendum 2. Heritage resources associated with the SIOM Mine and its MRA.

[7] See Addendum 4, Historical maps associated with the study area.

[8] See Addendum 5, The Mission Stations of Griquatown, Kuruman and Mosega and Addendum 6, Historical cameos from the greater region.

[9] See Addendum 8, Geological milieu including Geology and Vegetation.

[10]See Addendum 10 (Annex), Track logging data and, GPS locations of Track Log PHOTOS.

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 historical 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 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: -*
>
> *(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 natural features of cultural significance;*
> *(e) geological sites of scientific or cultural importance;*
> *(f) archaeological and palaeontological sites;*
> *(g) graves and burial grounds, including: -*
> *(i) ancestral graves;*
> *(ii) royal graves and graves of traditional leaders;*
> *(iii) graves of victims of conflict;*
> *(iv) graves of individuals designated by the Minister by notice in the Gazette;*
> *(v) historical graves and cemeteries; and*
> *(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983* ***(Act No. 65 of 1983);***
>
> *(h) sites of significance relating to the history of slavery in South Africa;*
> *(i) movable objects, including: -*
> *(i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;*
> *(ii) objects to which oral traditions are attached or which are associated with living heritage;*
> *(iii) ethnographic art and objects;*
> *(iv) military objects;*
> *(v) objects of decorative or fine art;*
> *(vi) objects of scientific or technological interest; and*

> *(vii) 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).***

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: -

(a) its importance in the community, or pattern of South Africa's history;
(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
(c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
(d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
(e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
(h) 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) sites of significance relating to the history of slavery in South Africa.

5.2. Grading and field rating.
(See Addendum 9 for grading and Impact of this HIA.)

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

• **National (Grade I):** Heritage resources with qualities so exceptional that they are of special national significance.

• **Provincial (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 heritage resources in the province are by default Grade II.

• **Local (Grade III):** Other heritage resources worthy of conservation. The Grade III tier is further split into three sub-categories, with IIIa = high, IIIb = medium and IIIc = low local significance. ***(SAHRA 2005/2007, 2016; Wiltshire 2013: 325).*** Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade I resources are intended to be managed by the national heritage authority. Provincial heritage resources authorities would manage Grade II sites. Grade III resources would be managed by the relevant local planning authority ***(Wiltshire 2013: 325).*** These bodies are responsible for grading, but anyone may make recommendations for grading. ***Unfortunately, only a few Provincial Heritage Resources Authorities (PHRAs) are fully functional.***

While grading is actually the responsibility of the heritage resources authorities, all reports must include Field Ratings for the site(s) discussed (proposals for grading), to comply with section 38 of the national legislation ***(SAHRA Draft Minimum Standards 2016: 25–26): -***

a) Proposed Field Rating/Grade 1 National Resource: This site is considered to be of Field Rating/Grade I and must be nominated as such (mention must be made of any relevant international ranking), a protected buffer zone must be proposed, these sites must be maintained in situ and a CMP must be recommended for the in-situ conservation of the site;

b) Proposed Field Rating/Grade II Provincial Resource: This site is considered to be of Field Rating/Grade II and must be nominated as such, a protected buffer zone must be considered, these sites must be maintained in situ and a CMP must be recommended for the in-situ conservation of the site;

c) Proposed Field Rating/Grade IIIA Local Resource: The site must be retained as a heritage register site **(High significance)** and so mitigation as part of the development process is not advised, a protected buffer zone must be considered, these sites must be maintained in-situ and a CMP must be recommended for the in-situ conservation of the site;

d) Proposed Field Rating/Grade IIIB Local Resource: This site could be mitigated and (part) retained as a heritage register site **(High/Medium significance).** Mitigation of these sites must be subject to a formal permit application process lodged with the relevant heritage resources authority;

e) Proposed Field Rating/Grade IIIC Local Resource: These are sites have been assigned a **Low field rating** which, once adequately described in the Phase I Assessment, may be granted destruction authorisation at the discretion of the relevant heritage authority outside of the formal permitting process, ***(with regard to section 38(8)*** cases. This will be subject to the granting of the Environmental Authorisation.

5.3. National Environmental Management Act, 1998 *(Act 107 0f 1998).*

The NEMA and subsequent regulations provide for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state; and all matters connected therewith.

The content of the Specialist Report must be in accordance with the specifications of NEMA EIA Regulations ***(GNR 982 of 4 December 2014),*** with specific reference to ***Appendix 6: Specialist Reports*** and must contain the following: -

(a) details of: -

(i) the specialist who prepared the report; and

(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;

(b) a declaration that the specialist 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;

(d) the date and season of the site investigation and the relevance of the season to the outcome of the assessment;

(e) a description of the methodology adopted in preparing the report or carrying out the specialised process;

(f) the specific identified sensitivity of the site related to the activity and its associated structures and infrastructure;

(g) an identification of any areas to be avoided, including buffers;

(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;

(i) a description of any assumptions made and any uncertainties or gaps in knowledge;

(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;

(k) any mitigation measures for inclusion in the EMPr;

(l) any conditions for inclusion in the environmental authorisation;

(m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;

(n) a reasoned opinion: -

(i) as to whether the proposed activity or portions thereof should be authorised;
(ii) 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;

(o) a description of any consultation process that was undertaken during the course of preparing the specialist report;

(p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and

(q) any other information requested by the competent authority.

5.4. 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 **(2009, 2013).** 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).***

6. Archaeological and Historical Context.

6.1 The Stone Age archaeology.

Early Stone Age (ESA), Middle Stone Age (MSA) and Later Stone Age (LSA) lithics occur widely within the greater Kathu – Gamagara Region. The materials used for the stone tools derived from a variety of geological materials but the famous ***"Beaumont hand-axe"*** consists of banded ironstone. Several engraving sites that date to the LSA are present in the wider region. These include the Wonderwerk Cave and Wildebeest Kuil site near Kimberley and a number of sites along the Vaal River such as Driekopseiland.

Also, to be mentioned, is the famous Taung scull of a juvenile ***Australopiticus Africanus*** that was found in the area showing the long-term occupation of the region by human ancestry.

Owing to the passage of geological time, ESA and MSA lithics and occupation sites have been covered by geological layers such as demonstrated by the ***"Heritage Mall"*** site in the northern part of the Kathu town development.

Figure 21. *The Wonderwerk Cave.* ***(Images of Wonderwerk Cave, bing.com/images)***

One of the most spectacular sites from the early period is the internationally renowned Wonderwerk Cave which emerges from the plains between Daniëlskuil and Kuruman, opening on the northern side into the ancient cavity. Within the cave are stratified dolomitic limestone overlying Asbestos Hills Banded Ironstone, dating from the late Archaean to early Proterozoic (2.4 billion years) ages.

Wonderwerk is one of a few sites world-wide with evidence of human occupation nearly 2 million years old. Indications are apparent throughout: Oldowan stone tools can be seen in a basal unit, and rock art is present in several areas of the cave, signifying the religious and spiritual practices exercised for over 10,000 years. Partial erosion and threats of imminent

collapse in certain areas have forced the cave to be closed to visitors. Additionally, continued research into the geology and archaeology of the site has not only slowed, but is severely threatened by the prospect of collapse.
Apart from these sites closely related to long term water sources, lithics will be found scattered in general landscape areas that can be termed "hunting sites", where artefacts related to LSA hunter-gatherers can be found in small and scientific insignificant quantities.

6.2 The Iron Age.
Agro-pastoral farmers moved into the Southern African region during the period circa 2000 YA. The term Iron Age is widely used to describe the Agro-pastoral (mixed farming) way of life associated with speakers of Bantu languages that contrasted with the Stone Age hunter-gatherer lifestyle ***(Huffman 2007).*** The Iron Age within sub-Saharan Africa has been divided into the Early Iron Age (AD 200–900), Middle Iron Age (AD 900–1300) and Late Iron Age (AD 1300–1840) ***(Huffman 2007; Kusel 2009).***

Although these divisions are somewhat arbitrary, they are useful in defining broad-based cultures, changing world views and technological advances. The term Iron Age is widely used in the South African context to describe the agropastoral (mixed farming) way of life associated with speakers of Bantu languages that contrasted with the Stone Age hunter-gatherer lifestyle ***(Huffman 1980, 1989, 2007, 2017, 2020).***

Agropastoral lifestyles are characterized by the production of both crops and retaining domestic herds and may be implicit in a lifestyle that occasionally included annual or seasonal migration to compensate for depletion of local resources.

Broadly speaking, the Iron Age can be separated from the preceding Stone Age in terms of distinguishing characteristics that included a reliance on food production through agriculture or animal husbandry, a settled village life, the manufacture of large quantities of pottery in distinct styles and, in particular, metal-working ***(Mitchell 2002).***

The evidence accumulated to date strongly suggests that the Iron Age and the associated settlement of farming communities in the sub-continent can most convincingly be explained in terms of population movement from further north. Within the South African context this model is largely based on ceramic typology, with the most widely used approach being the model developed by Tom Huffman ***(Mitchell 2002).***

Most important though is the availability of suitable soils for crop production and sufficient and constant yearly precipitation to allow farming independent of irrigation

6.2.1 The Early Iron Age.
There are several Early Iron Age (EIA) settlements, where ceramics diagnostic of the Doornkop facies, exist in the Eastern Lowveld, especially in the Steelpoort Valley. ***(Van Schalkwyk 2007a; Huffman & Schoeman 2002).*** Archaeologists' knowledge of EIA sites and cultural remains in Southern Africa is based on a relatively small statistical sample from a handful of sites, located mainly in the Eastern bushveld of South Africa, and by no means comprehensive. The current body of archaeological data demonstrates that EIA communities were essentially subsistence farmers with the dominant crops being millets and sorghums, although cucurbits, groundnuts and beans were also produced. There is no known Early Iron Age site near the present study area.

6.2.2 The Middle to Late Iron Age.

Around a 1000 ya the Mapungubwe State, that dominated large portions of the Northern Transvaal, Eastern Botswana, Southern Zimbabwe and limited portions of present-day Mozambique regulated life in the larger region until its final demise around 800 ya. From then on various Sotho, Tswana and Ndebele African farming communities inhabited the land to the east of the dry Kalahari. These included the Bahurutsi, Northern Sotho, Venda and Ndzundza Ndebele. ***(Mönnig 1963, 1978; Bergh 1990; Van der Ryst & Meyer 1999). Kusel (2006a, 2006b, 2008, 2012)*** provides detail on the origin of the first Sotho–Tswana groups and on the rise of the Pedi Empire during the reign of successively Thulare, Sekwati and Sekhukhune in the Eastern Transvaal. From the end of the eighteenth century and the early nineteenth century the area directly east of the present research area is also highly impacted upon by the raids from the south-east, most notably by the notorious Mzilikazi. This rebellious general of Chaka was finally expelled from the region by the Boer forces of Potgieter circa 1836-1838. Although some of the local indigenous peoples accepted this change of occupiers, Many Tshwane peoples, especially Sechele, eventually decided to seek the protection of the British Crown to the north of the study area, to eventually form what is today known as Botswana

6.3 The Historical Period.
(See Addendums 4, 5 and 6.)

The Historical Period in this region took a vastly different road than what happened to the areas to the east. European (Boer) Settlers were in fact no different in need for land than the indigenous peoples they forcibly ejected from the higher rainfall bushveld and highveld regions to the north, north-east, east and south-east.

Therefore, the first interest by Europeans (especially the British) became apparent after the discovery of diamonds along the Orange and Vaal Rivers in the 1870's, and the eventual discovery of the Kimberly mines ***(In Roberts 1984, Kimberly Turbulent City),*** that led to the first South African War and the establishment of the Bechuanaland Protectorate. ***(Sir Charles Rey, 1988.)***

Before this the only first historical event that impacted on the region was the formation of the Gruiqua peoples loosely called ***"Nation"***, from an array of mixed peoples between the later 18th century and middle 19th century. The original highly mobile Khoi or Khoe-Khoe or rather, first nation peoples, that lived nomadic lifestyles centred around animal husbandry were supplemented by escaped slaves of mixed race from the Cape Colony. This combination easily slipped into a simplified "European/Dutch/Boer" lifestyle outside the borders and control of the Cape Colony.

But over time they acquired valuable assets such as wagons, oxen, horses and "modern" rifles and an insatiable want for cattle that was available from their Agro-pastoralist neighbours to the east in the higher rainfall areas. From the Dutch and British they learnt the value of "cavalry warfare" and frequently raided eastwards until the arrival of Mzilikazi.

Mzilikazi was originally a lieutenant of Shaka but had a quarrel with him in 1823 and rebelled. Rather than face ritual execution, he fled northwards with his followers. He first travelled to Mozambique but in 1826 he moved west into the Transvaal and initiated the period known as the *Mfecane.* In the Transvaal his army easily overpowered the large peaceful Tswana, Sotho and other communities, that have over several centuries inhabited and populated this region of abundance.

During his reign of a decade or more, his only enemies were his own people from Natal, now, after the death of Chaka under Dingaan, and the Griqua to the west. After the arrival of the Potgieter trek in 1836, and his first defeat at Vegkop south of the Vaal River, the end of his struggle-hold was not long to come about. Both the earlier diaries of Moffat and the Smith expedition of 1836 gives us a clear view of his harassment by the Gruiqua and the Boers and by 1836 he was finally expelled from the Transvaal.

From the Travels and diaries of Campbell, Burchell and Moffat we get a very clear view that Agro-Pastoralist's never lived south of Kuruman or any-were in the research area. This is also confirmed by the British establishing a range of "Native Reserves" between the 1870's and 1901 *([11]).*

6.4 The missionary endeavour.
Missionary work in the region was mainly undertaken by the British London Missionary Society, the French and the Americans. For a fuller account ***see Addendum 5, The Mission Stations of Griquatown, Kuruman and Mosega.***

6.5 The mining history.
(See Addendums 8.)

The mining history and current mining operations are not extensively discussed for the purpose of this report. Early mention by missionaries mentions the Asbestos Mountains, but this was never extensively exploited owing to its remote location and eventual health hazard.

The vast lime reserves were only started to be mined after the arrival of the railroad in the region. The Lime Acres mine south of Postmansburg have been utilized by PPC for many decades, while AfriSam has during the last few decades heavily invested in lime/cement production in the Lichtenburg area.

The discovery of large iron ore reserves between Kathu and Postmansburg in the 1940's resulted in the Sishen – Saldanha project that dates back to 1953 when the original mine was established. The first ore from the mine was exported in 1976. More than 900 million tons (Mt) of iron ore has been produced during 60 years of the mine's operation. The life of Sishen mine cannot be estimated at present, as exploration is ongoing and many smaller mines are being opened continuously.

The present Sishen/Kumba (Anglo American) mine extracts the lump ore from a large *haematite ore body* hosted by a *Lake Superior-type* banded iron formation (BIF) called the Kuruman Formation of the Asbestos Hills Subgroup. The lump-to-fine ratio of Sishen in 2019 was 71:29. The ore body measures approximately 14km-long, 3.2km-wide and 400m-deep. Expansion projects such as Sishen Lower Grade projects, SEP1B and the Sishen DMS concentrate project are in consideration to extend the life of the mine.

Since the Sishen mine's establishment the Boshoek mine near Postmansburg was also developed and is now run under the Kolomela/Kumba Anglo American flag. Formerly known as the Sishen South project, the Kolomela mine project is a direct shipping iron ore project completed in late 2011. The first impact studies of the project were carried out in 2001, although the exploration works for the project were undertaken in the 1950s.

[11] For fuller details see Addendum 4, Historical cameos from the greater region.

Finally, the Kumani mine, located in the heart and to the south of the Sishen Mine, is a productive iron ore mine that represents one of the largest iron ore reserves in South Africa and in the world having estimated reserves of 709 million tons of ore grading 64.2% iron metal.

7. Previous HIAs.
(See Addendums 1 and 2.)

Archaeological Impact Assessments (AIAs), Heritage Impact Assessments (HIAs) and academic publications on the prehistory and historical period generated a data base for the general area. These sources demonstrate an ephemeral cultural landscape with no Iron Age or historical permanent settlement with utilization of the local resources only from the Stone Age peoples, from the deep past, over a period of time that spans a long time, up to recent times. The reports document the earliest occupations of hominins, Stone Age settlement, the migrations of San and Khoi groups, and no record of white farmers into the region.

A desktop study of existing literature on the wider region was conducted to assess the heritage context. The SAHRIS data base was also accessed for previous heritage reports that relate to the general region of the survey. A great many heritage surveys were conducted during evaluation of heritage resources on the Sishen Mine. Whereas numerous Iron Age and historical era sites have been recorded to the Northeast, none occur on the site under investigation. On the other hand, important stratified ESA sites do occur in the area but only a few disturbed Later Stone Age open-air sites have been found.

8. Findings.
This Phase 1 Heritage Impact Assessment (HIA) was conducted for the 2022 proposed expansion of SIOM as described below.

A single small, localised exposure of a typical mixture of ESA, MSA and LSA material was located in an old quarry pit at **9588** (27°49'3.07"S, 22°59'45.15"E), **8101** (27°49'2.85"S, 22°59'45.63"E) and **4935** (27°49'4.56"S, 22°59'45.37"E).

The site is afforded a field rating of Grade IIIC, Not Conservation Worthy (NCW) and has been adequately documented as part of this Phase I Assessment. It is recommended that the site be granted destruction authorisation at the discretion of the relevant heritage authority outside of the formal permitting process.[12]

It is expected that the study area will not yield subsurface heritage or burial sites. However, in such an event, the Change Find Procedure (CFP) must be implemented and the heritage authorities informed.

[12] ***See Addendum 11 for Grading and Impact and Addendum 12, figures 39 to 43, for the lithics found, figure 29 for the lithics exclusion site delineated in red.***

9. Impact Significance Rating.

ENVIRONMENTAL IMPACT RATING/PRIORITY					
PROBABILITY	MAGNITUDE				
	1 Minor	2 Low	3 Medium	4 High	5 Major
5 Almost Certain	Low	Medium	High	High	High
4 Likely	Low	Medium	High	High	High
3 Possible	Low	Medium	Medium	High	High
2 Unlikely	Low	**Low**	Medium	Medium	High
1 Rare	Low	Low	Low	Medium	Medium

Figure 22. *Significance Rating.* ***(Addendum 9.)***

9.1 Planning and Design, Pre-construction and Construction Phase.

Tabel 1.

No.	Aspect affected	Activity	Potential Impact	Reversibility	Irreplaceable loss	Phase	Size and scale of disturbance observed	Significance pre-mitigation			Mitigation Type	Significance post-mitigation		
								Probability	Magnitude	Significance		Probability	Magnitude	Significance
1	Heritage	Project code: SIS-SIS-22-04-25 At present no impact is requested by client in this area.	No impact	Impact already occurred non reversable	Low degree	N/A	1 ha	2	2	Low	No mitigation required	2	2	Low

9.2. Measures to rehabilitate the environment affected by the proposed project.

Tabel 2.

No.	Aspect affected	Activity	Potential Impact	Phase		Mitigation type	Impact management actions / Mitigation measures	Impact management outcome	Standard to be Achieved	Time period for implementation
1	Heritage	Project code: SIS-SIS-22-04-25	No impact	Through-out		N/A	N/A	N/A	N/A	Through-out

Figure 23. *Shangoni table for Measures to rehabilitate the environment affected by the proposed project.*

From the impact assessment tables in Addendum 11 it is evident that the impact of the proposed project on heritage resources will be of Low Environmental Significance without mitigation.

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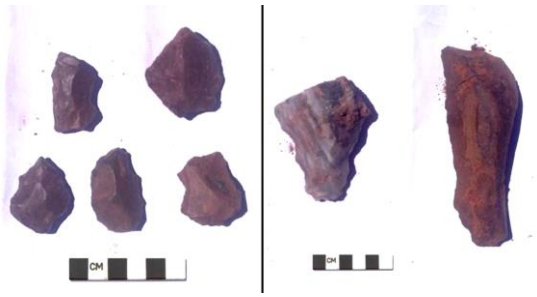
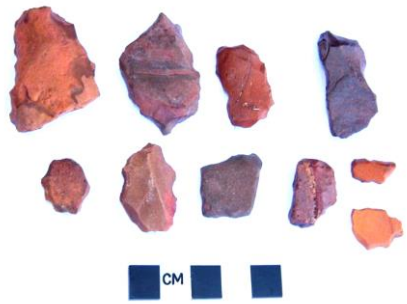
Addendum 1. Heritage studies Undertaken by Sishen mine between 2004 and 2022. (Retrieved from the 2020 HMP BY D v. d. Merwe.)

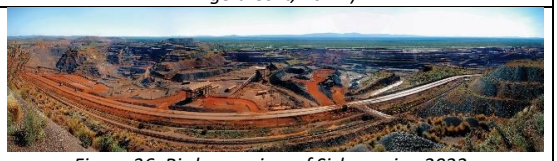
	Heritage Specialist	Title
2004	Beaumont, P.B. McG. Museum	Heritage EIA of two areas at SIOM.
2005	Beaumont, P.B. McG. Museum	Heritage Impact Assessment of an area of the SIOM that may be covered by the Vliegveldt waste dump.
2005	Beaumont, P.B. McG. Museum	Heritage Impact Assessment for EMPR Amendment for crusher at SIOM.
2005	Beaumont, P.B. McG. Museum	Archaeological and Heritage Phase 1 Impact Assessment for proposed upgrading of SIOM Diesel Depot Storage Capacity at Kathu, NCP.
2008	Morris, D. McG. Museum	Archaeological and Heritage Phase 1 Impact Assessment for proposed upgrading of SIOM Diesel Depot Storage Capacity at Kathu, NCP.
2009	Beaumont, P.B. McG. Museum	HIA for the AGES EIR for the proposed construction and operation of the Lilyveld Opencast Iron Mining Development and Associated Infrastructure.
2010	AGES Team	Amendment to the SIOM EMPr, (Approved 2002) and EIR for the AND EIR For the proposed construction and operation of the Lilyveld Opencast Iron Mining Development and Associated Infrastructure.
2012	AGES Team Kruger, N.	Archaeological Impact Assessment Report for Sishen Western Waste Dumps: SIOM, Kgalagadi District Municipality, NCP.
2013	Dr. M. van der Ryst & S. Küsel	Phase 2 Specialist Study of Affected Stone Age Locality at Site Sa02, A Demarcated Surface Area, On the Farm Nooitgedacht 469. (Woon 469.)
2013	Kruger, N. Ages	Archaeological Impact Assessment (AIA) Of Demarcated Surface Portions on The Farms Sacha 468 And Woon 469 for the Proposed High Energy Fuel Plant and Railway Siding, SIOM, John Taolo Gaetsewe District, NCP.
2013	Becker, E.	Dingleton Resettlement Project - 26/11/2013 ...
2013	Steyn H.	Spoornet cemetery-Dingleton The permit is for the exhumation and relocation of 22 graves that are possibly above 60 years.
2014	Kruger, N. Ages	Archaeological Impact Assessment for SIOM: Stormwater Infrastructure for The Sishen Mine, John Taolo Gaetsewe District Municipality, NCP.
2014	Kruger, N. Ages	Archaeological Impact Assessment (AIA) of Demarcated Surface Portions on The Farm Sekgame 461 for the Proposed Sekgame Electricity Infrastructure Expansion Project, SIOM, NCP.
2015	Kruger, N. Exigo³	Sishen Iron Ore Company (SIOC): Proposed Lyleveld North Waste Rock Dump Expansion and Lyleveld South Haul Road Extension Project, SIOM.
2016	Kruger, N. Exigo³	Sishen Iron Ore Company (SIOC): Proposed Sishen Process Water Dam Project, SIOM, NCP.
2016	Kruger, N. Exigo³	Archaeological Impact Assessment Shangoni Management Services: Proposed Extension of The Existing Pit and Dumps At SIOM, NCP.
2017	Birkholtz, P. PGS Heritage	Archaeological (Stone Age) survey and palaeontological desktop study for the development of a new pollution control dam on Farm Aldag and the expansion of a currently planned pollution control dam on Farm Lylyveld.
2018	Morris, D. & Henderson, A. McG. Museum	Heritage Impact Assessment Report for the Proposed Transnet Sishen Railway Line Link, Near Kathu, Gamagara Local Municipality, NCP.
2018	Birkholtz, P. PGS Heritage	Heritage Impact Assessment for the Proposed Western Dewatering Infrastructure Project on the SIOM, Kathu, NCP.
2018	Birkholtz, P. PGS Heritage	Proposed DMS Upgrade Project at The Sishen Mine, Sishen, Gamagara Local Municipality, NCP.
2019	Birkholtz, P. PGS Heritage	Heritage Impact Assessment for the proposed Extension of mining activities and the widening of a haul road on the Farm Lylyveld 545, near Kathu, NCP.
2019	W. Fourie	Request for Exemption from a Heritage Impact Study: New Developments at Sishen Mine, Southwest of Kathu, Gamagara Municipality, John Taolo Gaetsewe District, NCP.
2020	V D Merwe D	Heritage Management Plan. Draft. Rev 01.
2020	Miller, S.M.	Sishen Stockpile 1st phase HIA. (With amendment.)
2022	Anglo American	Old Landfill Site Rehabilitation. PP presentation. Doc No K0019-I-I18100-IP-PRS-C0000-0024
2022	Fivaz, H., & Engelbrecht, J.	Proposed Waste Dump Rehabilitation on the portion 19 of the farm Sishen 543.

Addendum 2. Heritage resources associated with the Sishen Iron Mine and its Mining Right Area.[13]

Site	Description and Significance		Images
SA01 SA02 SA03	Small numbers of MSA occurrences were observed at three localities in the study area. Two of these Stone Age sites occur in association with salt pans, one site specifically near Springbok Pan. The artefact scatters are mostly constituted out of debris flakes but single formals stone tools such as side scrapers, points and blades produced on fine grained specularite, jaspilite and banded iron stone, were recorded. Some of the tools display secondary retouch. The sites are of limited signif- icance due to the low density of formal tools, as well as the general loss of context due to natural processes.	The sites were of Low Significance	 *Figure 24. Lithics from site SA02. (Van Der Merwe, 2020.)*
Site HP01	The dilapidated ruins of the old Woon farmstead occur to the northeast of the study area. At the site, a single section of mud brick wall, farmstead imple-ments, a concrete dam and a wind mill remains. The farm Woon was prolaimed in 1908 and it could be assumed that the farmstead dates to this period. Even though the farmstead and associated features are therefore older than 60 years, the site is probably of limited signif icance due to the general poor preservation of structures and features.	The sites were of Low Significance	 *Figure 25. The remaining walls of the Woon farmhouse. (Van Der Merwe, 2020.)*
SA04	Single MSA lithics were documented at three sites near water pans in the area. The occurrence is probably of limited scientific value due to the low density of the material and the frequent occur- rence of such MSA assemblages in the general landscape. Will be affected by Western Waste Rock dump expansion.	The sites were of Low Significance	 *Figure 26. Flaked MSA lithics. (Van Der Merwe, 2020.)*
Area SA01 and SA02	These occurs within the proposed Sishen Stormwater Infrastructure Project Area. Area SA01 Small number of Middle Stone Age (MSA) occurrences were observed along the clean water berm route towards the west near Shesheng. Area SA02 A low-density Middle Stone Age (MSA) scatter was observed along the clean water berm route towards the east on the farm Sekgame. The artefact scatter is mostly constituted out of debris f lakes but single formals stone tools such as side scrapers and points, produced on fine grained specularite, jaspilite and banded iron stone, were recorded. Some of the tools display secondary retouch.	The sites were of Low Significance	 *Figure 27. Lithics from Area SA01, cores (right), and flake (left). (Van Der Merwe, 2020.)*

[13] ***See the 2020 Heritage Management Plan. Draft. Rev 01 by Divan van der Merwe***

LV 001.	Low-density surface scatter of Stone Age f lakes across a highly disturbed area approximately 30 x 10 m. Artefacts are made on chert and have been exposed at the surface for a great deal of time, hence their context is poor. A single flake appeared to retain some retouch (shaping), although this may likely be natural concussion damage. Associated with these sporadic artefacts are a high number of natural ironstone pebbles and cobbles, as well as geofacts (natural rocks that appear to look like artefacts), in a deflated context. Within the footprint of the proposed Lylyveld PCD	The sites were of Low Significance	 *Figure 28. Lithics from Area SA01, (Van Der Merwe, 2020.)*
RL1- 5	Within footprint of proposed Transnet Sishen Railway Link.RL1. Isolated jaspi-lite flakes and cores observed amongst rock outcrops. RL2. Isolated surface finds of jaspilite flakes with 'Kathu Townlands dots.' RL3. Isolated radial core on quartzite. RL4. Dispersed scatter of jaspi-lite flakes. RL5. Isolated MSA and other flakes on jaspilite.	Low Significance	 *Figure 29. Examples of stone tools on sites RL 1-5. (Van Der Merwe, 2020.)*
SG461-SA01.	Within footprint of proposed electricity lines. A low-density MSA scatter was identified along the proposed electricity distribution line in association with a shallow quarry, directly adjacent to the N14 road. The area has been significantly altered as a result of digging at the quarry and the extent of the lithic scatter could not be established. As such, artefacts occur randomly on the quarry surface and it is evident that the context of the artefacts has been lost.	The sites were of Low Significance	 *Figure 30. Lithics from Site EXIGO-SG461-SA01; a point (left), side scraper (middle)and highly weathered blade (right). (Van Der Merwe, 2020.)*
SG461- SA02. SG461- SA03	A larger scatter of MSA material was documented towards the southern offset of the proposed electricity distribution line, as well as in the eastern sector of the proposed Sekgame switching yard site. Formal tools such as points, broken blades and scrapers as well as a number of cores, produced on fine grained specularite and jaspilite were noted. The Stone Age representations at the site is of interest due to the presence of formal stone tools, as well as its position within the larger Kathu Complex. A specialist analysis of lithics from the sites will provide an understanding of the development and spread of the already significant MSA in the Northern Cape and Karoo areas.	The sites were of Moderate Significance	 *Figure 31. MSA cores from Site EXIGO-SG461-SA02. (Van Der Merwe, 2020.)*
Exigo- SDESA01 Exigo- SDESA02.	Single Middle Stone Age (MSA) lithics were observed at two localities along the southern periphery of the proposed Southern Dump Extension footprint on the farm Sishen, where precipitation and groundwater have exposed the stone tools. The lithics are characteristic of the MSA and single formal tools such as scrapers, a blade and an adze were noted.	The sites are of Low Significance.	 *Figure 32. Flaked lithics from Site Exigo-SDE-SA01: (Van Der Merwe, 2020.)*

SDESA03 SDESA04.	MSA lithics in single numbers were documented at two localities within the proposed G80 Dump Extension footprint on the farm Sacha. The tools occur on the surface where precipitation and groundwater have exposed the material and at Site Exigo-SDE-SA04, lithics were noted along the rim of a small water pan. Single formal tools such as side scrapers and a reworked broken point were noted.	The sites are off Low Significance.	 *Figure 33. A broken reworked point from Site Exigo-SDE-SA04. (Van Der Merwe, 2020.)*
Dingle Cemetery.	A relatively large cemetery occurs some distance (approximately 1.5km) south of the Southern Sump Extension Area on the banks of the Gamagara River.	The site is of High Significance.	 *Figure 34. Dingle Cemetery. (Van Der Merwe, 2020.)*
Dingle Dumpsite Cemetery.	A few unmarked and marked graves occur directly to the west of the proper Dingle Cemetery (above) in a dumpsite marked to be cleared.	The site is of High Significance.	 *Figure 35. Marked and unmarked graves. (Fivaz and Engelbrecht, 2022.)*
Sishen mining infrastructure.	Sishen mine has been operational since 1953 which makes the mine older than 60 years. Therefore, infrastructure older than 60 years is technically protected under the NHRA.	To be verified as necessary.	 *Figure 36. Birds-eye view of Sishen mine 2022.*
Dingleton.	The town of Dingleton (previously Sishen Town) was developed in 1953 as a result of mining activities. The town displayed various structure older than 60 years. A demolition permit has been obtained and most infrastructure has been demolished.	Not applicable any more.	 *Figure 37. Dingleton Church. 2019.*

Addendum 3. Kathu Pan: Location and Significance.

(A report requested by SAHRA for the purpose of nomination.)
S. J. H. Walker, M. Chazan, D. Morris. 23 July 2013.

Scope and purpose of report.

This report and the associated Google Earth kmz file were produced at the request of Kathryn Smuts of the Archaeology, Palaeontology and Meteorite (APM) Unit of the South African Heritage Resource Agency (SAHRA). The purpose of the document is to provide spatial data for the 12 identified Kathu Pan localities. Included with these data, this report describes the associated metadata as to how these locations have been determined. This report also describes the site's context and history of work, along with a brief summation as to the site's scientific significance for the purposes of nomination. The authors form part of the research team currently working at Kathu Pan. (Permit ID 731.)[14] The primary intent of this report is to contribute to the National Heritage Site Nomination of Kathu Archaeological Complex, Northern Cape[15].

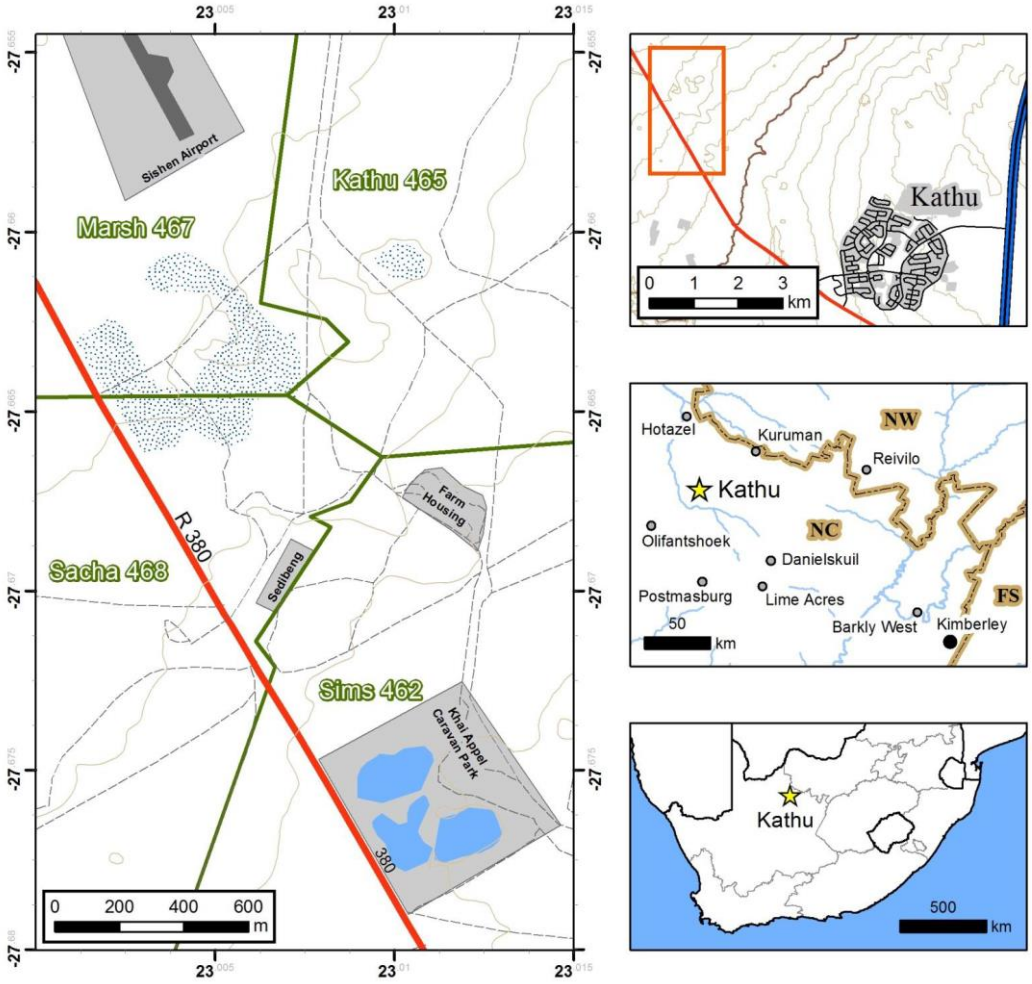
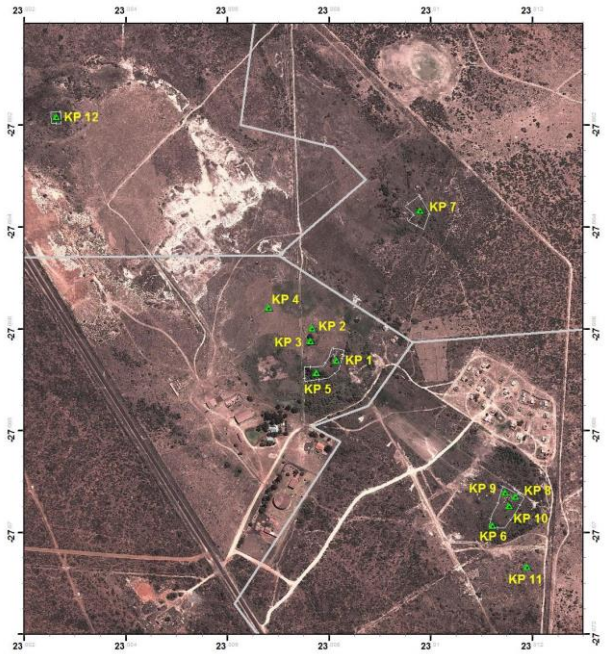


Figure 38. *The location of Kathu Pan as described in the text.* ***(Walker et al, 2013.)***

[14] ***http://www.sahra.org.za/node/2159***

[15] ***http://sahra.org.za/content/national-heritage-site-nomination-kathu-archaeological-complex-northern-cape***



Brief Description of Kathu Pan, its location and a history of work.

Kathu pan (Kathu vlei) has produced extremely significant archaeological and palaeoecological data since its discovery in 1974 *(Anon, 1975b; Butzer, et al., 1978; Butzer, 1982; Beaumont, 1983; Beaumont, et al., 1983; Butzer, 1983; van Zinderen Bakker, 1983; Beaumont, et al., 1984; Butzer, 1984a; b; Beaumont, 1990; van Zinderen Bakker, 1995; Beaumont, 1998; 1999; 2004; Beaumont & Vogel, 2006; Porat, et al., 2010; Wilkins, 2012; Wilkins & Chazan, 2012; Wilkins, et al., 2012; Beaumont & Bednarik, 2013; Bednarik, 2013).*

Figure 39. *The locations of the sites investigated, the fenced enclosures with satellite imagery & cadastral information and the farm boundaries on Kathu Pan.* ***(Walker et al, 2013.)***

It is (was) a marshland and ephemeral surface water body fed primarily by artesian seepage. The surface of this water body fluctuates seasonally with the water table, but it has not risen above the ground surface since significant pumping began of the aquifer to supply the town of Kathu. Four farms[16] converge more or less at the centre of the pan, Marsh 467, Sacha 468, Kathu 465, and Sims 462; "to share one of the few local sources of permanent water" *(Beaumont, 1990: 75).* The pan is located just to the west of the current extent of the town of Kathu. *(Figure 23).* The pan is adjacent to and east of the R380 that connects Hotazel and Kathu. It lies to the south of the Sishen Airport, and just north of the Khai Appel Caravan Park where an artificial permanent water body has been established. Recently the Sedibeng water treatment facility was established to pump and treat the artesian water source of the town of Kathu on the farm of Sacha 468 along the southwestern edge of the pan deposit[17].

The pumping of groundwater for the town of Kathu began to drop the water table in the mid-1970s, resulting in the formation of a number of sinkholes (dolines) subsiding in the pan deposit. The modern formation of these sinkholes is described by Butzer: -

> "An 8m drop of the water-table has led to the compaction of numerous doline fills, with collapse and partial exposure of the sedimentary sequence." (*1983: 39.).*

Archaeological and palaeontological deposits were first identified at the locality later designated KP1: -

[16] Beaumont only maps three farms. The border of Marsh 467 is unclear on 2723CA-1972, but the farm did (and does) exist.

[17] The airport, caravan park and water treatment plant may all have associated development documents that may have clues as to the extent of the deposit, and maybe even sub-surface descriptions. The water treatment plant particularly may be useful in better understanding the ground water and the nature of the pan.

"in 1974 handaxes and faunal remains were observed in the walls of a newly-formed c.3m deep and 6m wide subsidence near the homestead of the then farm manager, Naas Viljoen" *(Beaumont, 1990: 75.)*

Beaumont's description of the discovery of the site is provided by the writer Julia Martin who quotes him as saying: -

"The pan site was first reported by a farmer, a nice chap, Viljoen. There was a sinkhole on the farm, and the farm children were playing in it. They noticed these handaxes sticking out of the sides. Their father called the museum." (2008: 153.)

Figure 40. *Handaxe from Kathu Pan Stratum 4b, Unit D21 (MCGM-6538-14) on left, with two other handaxes from KP1 for scale.* ***(Photo: Michael Chazan.)***

The site was first reported in the *Diamond Fields Advertiser* (Kimberley) prior to the museum's involvement. *(Anon, 1975a: enclosed in full as Figure 27 below.)* The first archaeologist to conduct fieldwork at the pan was A. J. B. Humphreys on 13 August 1975. *(Anon, 1975b: enclosed in full as Figure 27 below.)* His field notes from this trip are also included below as *Figure 28.*

1-million-year find at Sishen

From Our Correspondent

SISHEN. — A unique archeological find has been made on one of Iscor's farms near Sishen.

Abundant rains of the last two seasons have formed a sinkhole approximately three metres deep near the house of Mr Naas Viljoen, manager of the farm Sacca.

While his children were playing in the hole recently they discovered some unusually shaped stones which aroused their interest.

Mr Martin Bisset, chief geologist at Sishen, recognised the stones as an arsenal of prehistoric weapons and implements, dating from the early Pleistocene period.

This means the weapons are approximately one million years old, and from the same period as the first fossils of Homo Sapiens.

A peculiarity of the find was that the weapons do not appear to be all the same age, but this will probably be explained shortly when further excavations are carried out.

SISHEN STONE AGE FIND

Staff Reporter

THE prehistoric stone implements, discovered on Sacca farm near Sishen have been identified as belonging to the Achelean culture which forms part of the Early Stone Age and are estimated to be at least 100 000 years old.

This information was revealed yesterday by Mr Tony Humphreys, archaeologist of the McGregor Museum.

The implements may be older because the hand axes found are known to have been made over a very long period of time. The people of the Archeulean culture were a very primitive ancestor of modern man. They were very dependent on water supplies, especially in the dry environment of the Northern Cape and many of their sites have been found near rivers, pans and old spring sites. The Sacca site must have been an active water source until recently.

The people lived by hunting and gathering vegetable plants. This particular culture is known throughout Africa and Europe. It represents a very widespread and long phase in human development.

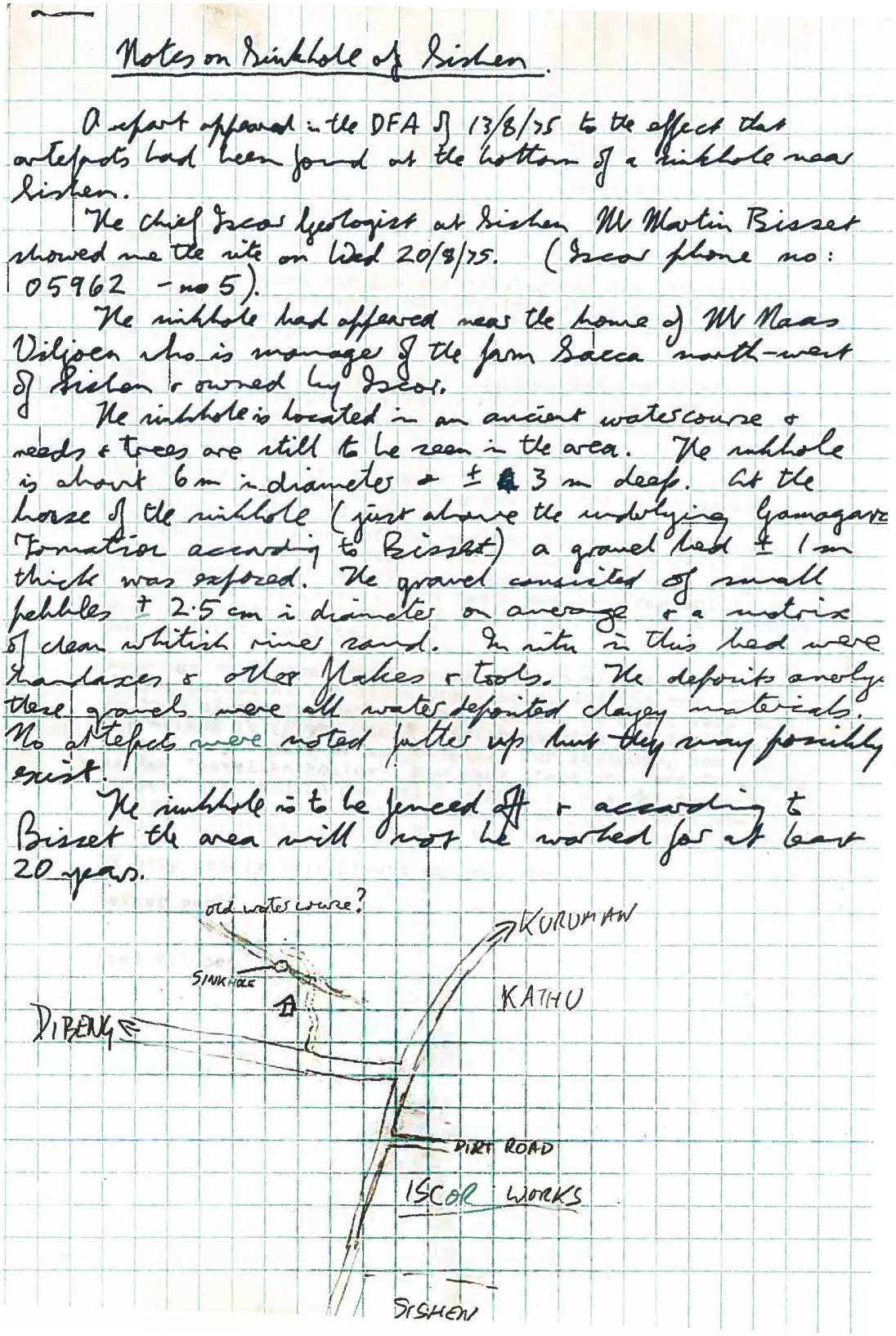
According to the report, the high gloss on the implements is not related to their manufacture or use but is the result of a natural phenomenon.

Dr J. N. J. Visser of the geology department of the University of the Orange Free State said that the shine was caused by the deposition of silica on the implements as the water level fluctuated in the past.

Mr Humphreys said that another well-known Archeulean site near Kimberley, Doornlaagte on the Schmidtsdrift road, may be much older than the sinkhole site at Sishen because the implements are much more crudely made

Figure 42. Left. *Diamond Fields Advertiser, 1 October 1975.* ***(McGregor Museum Archives)***

Figure 41. Right. *Diamond Fields Advertiser, 13 Aug 1975* ***(McGregor Museum Archives)***



Notes on Sinkhole of Sishen.

A report appeared in the DFA of 13/8/75 to the effect that artefacts had been found at the bottom of a sinkhole near Sishen.

The chief Iscor geologist at Sishen Mr Martin Bisset showed me the site on Wed 20/8/75. (Iscor phone no: 05962 - no 5).

The sinkhole had appeared near the home of Mr Maas Viljoen who is manager of the farm Sacca north-west of Sishen & owned by Iscor.

The sinkhole is located in an ancient watercourse & reeds & trees are still to be seen in the area. The sinkhole is about 6 m in diameter & ± 3 m deep. At the base of the sinkhole (just above the underlying Gamagara Formation according to Bisset) a gravel bed ± 1 m thick was exposed. The gravel consisted of small pebbles ± 2·5 cm in diameter on average & a matrix of clean whitish river sand. In situ in this bed were handaxes & other flakes & tools. The deposits overlying these gravels were all water deposited clayey materials. No artefacts were noted further up but they may possibly exist.

The sinkhole is to be fenced off & according to Bisset the area will not be worked for at least 20 years.

Figure 43**. A.J.B. Humphreys' field notes.* ***(McGregor Museum Archives)

This initial work was followed up by visits undertaken by Mr. Beaumont in 1978, the year he was appointed to the McGregor Museum. First visit was in July with the Botanist Andy Gubb.

Gubb then took the pollen scientist van Zinderen Bakker there in September. Peter brought Professor van der Merwe to the pan in October. In December of that year, Peter and Duncan Ross-Watt (McGregor Museum) carried out "preliminary surveying at the pan" – producing a map with elevations. John Vogel dated a peat sample via S. Weldon also in December 1978[18].

Proper archaeological excavations began at KP1 in 1980. *(See Table 1 for a history of work.)* Excavations were undertaken at KP1-KP5 in 1982. KP5, KP6, and KP7 were excavated in 1983. A popular newspaper article about these excavations appeared that year in the *Star Today (Anon, 1983.)*

Surface collections were undertaken at KP11 in 1984. KP6, KP8 were excavated in 1985. KP9 was excavated in 1990. KP10 was mechanically dug in 1990 also, but no archaeological excavations were undertaken.

An early map of these sinkholes was published as part of a conference excursion field guide for SASQUA in 1983. *(Figure 29.)* At that time only 4 sink holes were mapped as 'sites' (KP1, 5, 6, & 7) with three small excavations into the pan (KP2, 3, 4). The cluster of sinkholes, later mapped as KP8, 9 & 10 are indicated on the map as a borehole (possibly an error) and only given one number, 8. There was a hiatus of archaeological work at the pan from 1990 to 2004 when Dr. Chazan and other members of the current research team began to undertake further excavations at the site and analyse some of the large assemblage collected by earlier field work. As a result of this further work producing significant data, KP1 was declared as a Grade 1 site in 2013[19].

Description of spatial data provided in this report – Method of identification.
The coordinates of the 11 Kathu Pan localities (of the 12 provided in this report) were determined as part of an ongoing field project at the site. These field identifications were undertaken as an extremely minor component of the 2013 field season including the efforts of Mr. Walker, Dr. Chazan, and Dr. Jayne Wilkins (currently based at Arizona State University).

In 1990, Peter Beaumont provided details of these 11 localities and a schematic map of their location on the pan. *(Figure 30.)* This map was geo-rectified using the farm boundaries and roads atop the CDSM 1:50 000 map 2723CA-1972. *(Figure 31.)* This provided us with approximate GPS coordinates for each of the 11 localities mapped by Beaumont that could then be field checked.

Some of these localities are currently enclosed by fencing whose gates have been locked. It isn't clear if this fencing was erected to protect the archaeological deposits, or to protect the public and livestock from the danger presented by the sink holes (more likely this). Either way, it is likely that SAHRA or MMK has archived documents relating to the construction of this fencing that may have more accurate spatial data for some of these localities than can be provided here. The best guess locations for each of these localities based on our 2013 field work is provided in the following table, contained in the associated kmz file, and mapped in *Figures 23 & 32.* The coordinates are as follows:

Name	Confidence	East (metric)	south (metric)	Excavation date
KP1	High	23.00814601000	-27.66662800000	1975, 1980, 1982, 2004, 2013

[18] This is all according to notes in the McGregor Museum Archives.
[19] http://www.sahra.org.za/node/2158

KP2	Low	23.00766002000	-27.66598997000	1982
KP3	Low	23.00763002000	-27.66624997000	1982
KP4	Low	23.00681002000	-27.66558504000	1982
KP5	High	23.00774996000	-27.66686998000	1982, 1983
KP6	High	23.01121797000	-27.66987699000	1983, 1985
KP7	Low	23.00978534830	-27.66367970850	1983
KP8	Medium	23.01154927120	-27.66949210770	1985
KP9	Medium	23.01165956040	-27.66929971700	1990
KP10	Medium	23.01146586850	-27.66922254850	1990
KP11	Low	23.01189461260	-27.67067982070	1984
KP12	High	23.002633	-27.661842	NA

Table 1: Best estimated locations for the 12 Kathu Pan localities

Kathu Pan 1 & 5.
The exact location of these two localities was known prior to fieldwork in 2013. These sinkholes are contained within the same fenced enclosure. The coordinates given for KP1 were an averaged waypoint taken with a Garmin Oregon 300 at the back-site designated KP1-BS0, at the bottom centre of the sink hole. The coordinates given for KP 1 and 5 are highly accurate.

Kathu Pan 2, 3 & 4.
These localities were described as 2x2 m excavations "casually dug" by Mr. Beaumont in 1982 on the surface on the pan with no associated sink holes. *(Beaumont, 1990: 83-85).* The coordinates provided here are a best guess as to the approximate location of these excavations. At the location currently designated KP3 there is possibly an incipient sink hole forming, with numerous surface artefacts of similar type and material to those found in KP1 Kathu Pan: Location and Significance (23 July 2013) 5 excavations. The given coordinates for these localities have a low level of accuracy for providing the locations of Mr Beaumont's 1982 excavations.

Kathu Pan 6, 8, 9, & 10.
These localities are all contained within the same fenced enclosure. In the northern portion of this enclosure there is a large and deep cluster of sink holes. The locations of KP8, KP9 and KP10 are all estimated based on the distribution provided on the 1990 map in relative association with these sink holes. KP6 is in the southern portion of the enclosure and closely matches the description provided in 1990. As a result, this location was ranked as a high confidence.

Kathu Pan 7.
Only limited (and unsuccessful) efforts could be made to identify this locality in the field in 2013. However, examination of the satellite imagery provided by Google reveals another small fenced enclosure in the vicinity of KP7's estimated location. The centre of this fenced enclosure is provided here as the coordinates for KP7, but this has not been field checked.

Kathu Pan 11.
This locality was described as an infilled paleochannel where surface collection of LSA artefacts was undertaken by Beaumont in 1984. The 2013 field work was unable to identify any landscape features that corresponded with Mr Beaumont's description nor any surface LSA artefacts. The coordinate given here are a best guess based on field observations and the placement of KP11 on the 1990 map. As a result, this location has a low level of accuracy.

Kathu Pan 12.

This fenced locality was shown to one of us (Dr. Morris) by the Farm Manager, Kasper van Vuuren, in 2013 while visiting the site. Although no formal investigations could be undertaken, no artefacts were observed at that time. The sinkhole is quite deep and sheer sided.

Fenced Enclosures.
GPS Coordinates were taken at the fence posts for the two southern enclosures resulting in the provided polygons for these enclosures. The enclosures around KP7 and KP12 were based off the Google imagery as described above.

Site Buffer.
No buffer zone has been established around the pan deposits at this time. Considerable further fieldwork needs to be undertaken to clarify the extent of the deposit. Currently the sink holes have offered windows into the deposits around the pan, and some excavations in the 1980s have offered clues about the archaeological deposit outside of sink holes. Nonetheless, the overall extent of the archaeological deposit (surface or subsurface), as well as the number of sink holes currently in existence, is unknown.

Built environment.
A small group of houses for farm workers is included inside the buffer, and these may be of heritage significance outside the scope of scientific significance of the pan deposits. It is beyond the scope of this document to comment on these structures further.

Archaeological and Palaeoecological Significance of Kathu Pan.

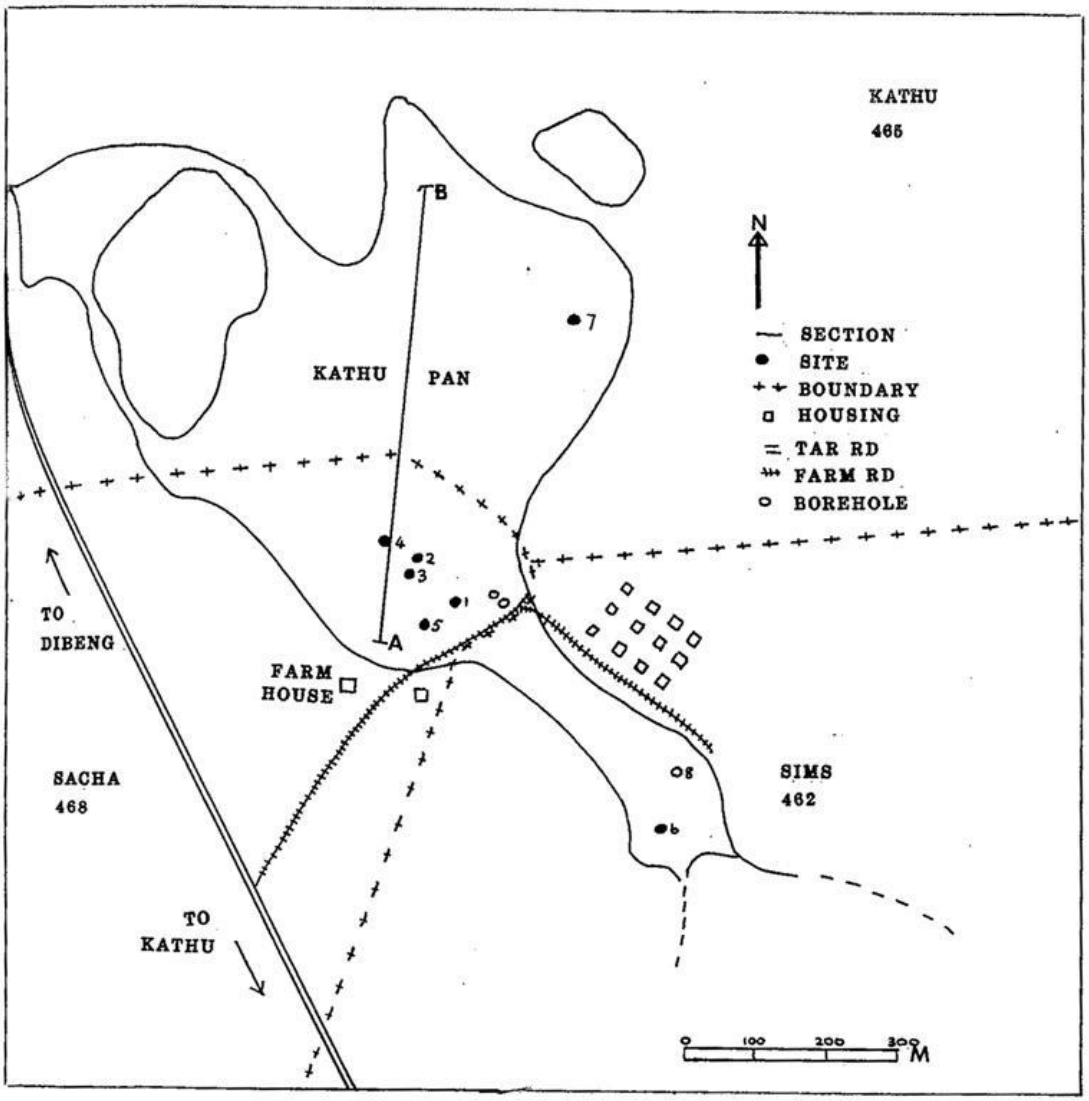
> *"Since ESA times the water-table at the pan has mostly been so high that, under natural conditions, it rises in summer above the peaty surface. This environment provided an oasis for prehistoric people and animals" (van Zinderen Bakker, 1995: 101)*

The scientific significance of the entire pan cannot be underestimated. Although the majority of excavation and discovery has happened at KP1, the extent of the deposit is much larger. The overall deposit represents a landscape draw for hominids and animals, as well as many other potential sources of paleoenvironmental information. Butzer described these deposits as: -

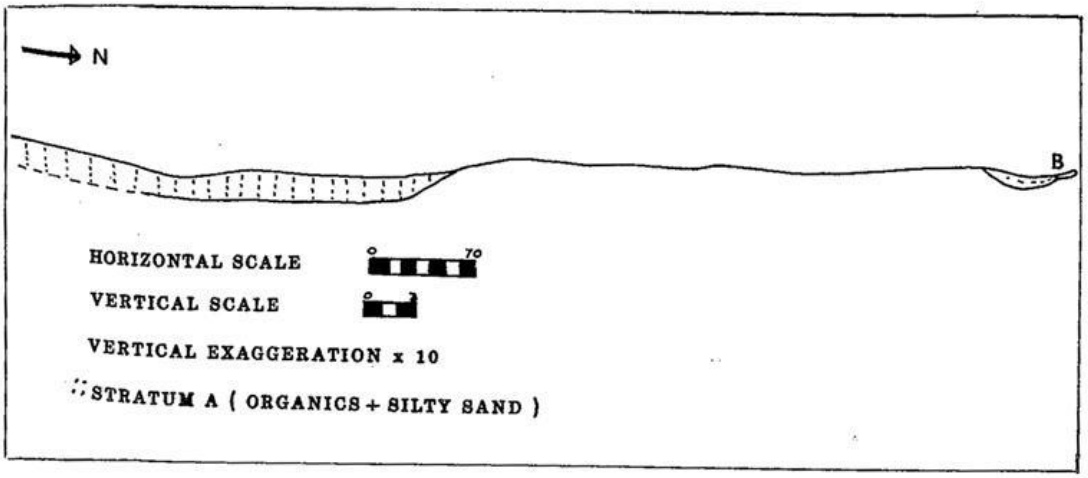
> *"Perhaps the best paleoenvironmental sequence from the Kalahari Basin comes from Kathu Vlei (or Pan)" (1983: 39; 1984a: 45).*

He goes on to describe from a sedimentological perspective why this pan is so unique, notably that it is feed by an aquifer rather than surface water: -

> *"The significance of this sequence [at Kathu Vlei] is that it primarily reflects long-term groundwater trends, rather than short-term geomorphic processes. It therefore gives a filtered climatic record, and one that provides unique evidence for protracted intervals during the Pleistocene … in comparison with Kathu Vlei, other depressions of the southern Kalahari Basin provide only a superficial record of late Pleistocene re-modelling." (Butzer, 1984a: 48.)*



PLAN OF KATHU PAN SHOWING SITE LOCATIONS



SECTION ALONG LINE A-B AT KATHU PAN

Figure 44. *First known published map of Kathu.* ***(After Beaumont, 1983: 38.)***

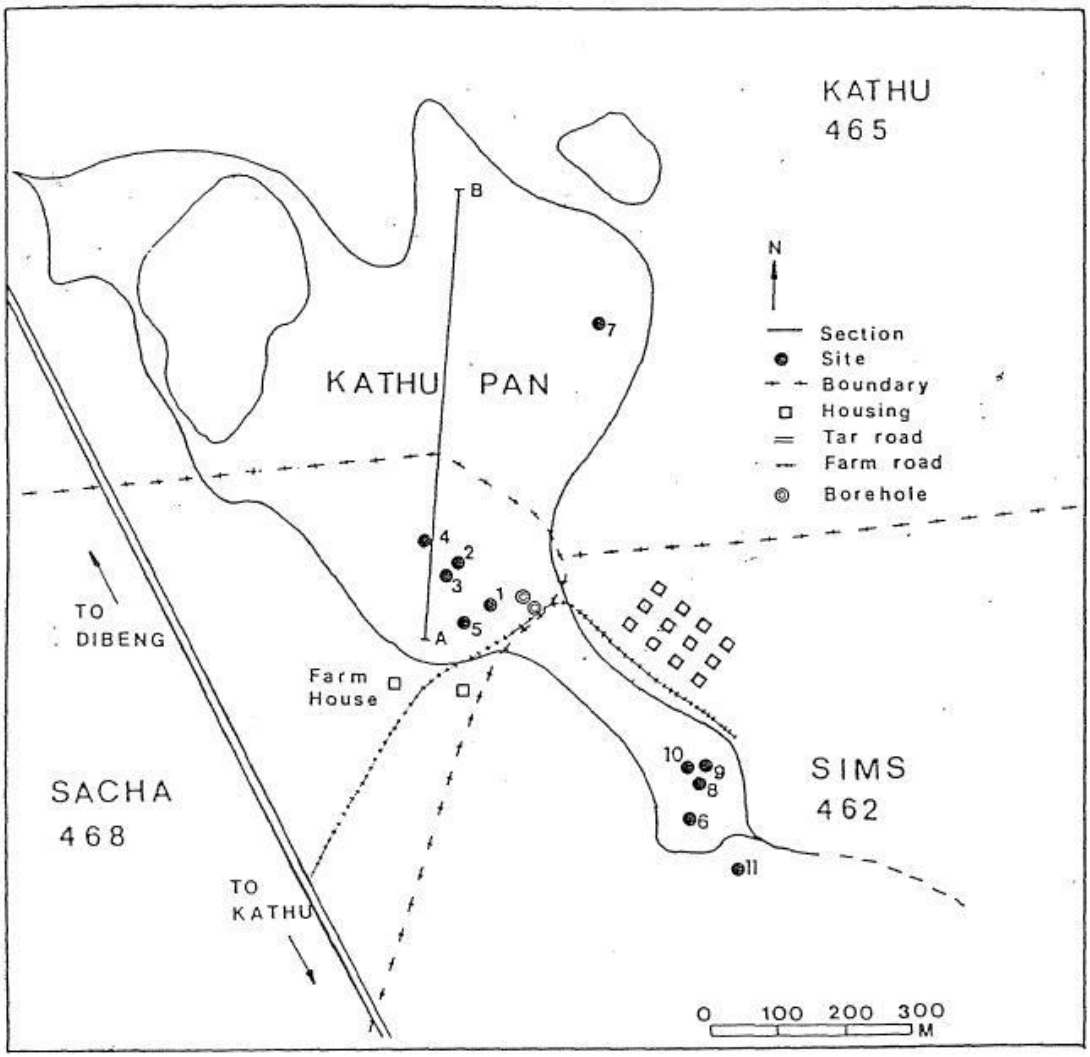


Figure 45. *Primary map of the Kathu Pan localities.* ***(After Beaumont, 1990.)***

The archaeological deposits observed at the pan are also important and unique for multiple reasons. These deposits contain both ESA artefacts and fauna in association with each other in near primary context. This alone is unusual, as Volman put it: -

> "Only seven [Southern African] sites contain ESA artefacts and bones in primary or near primary context. These are Cave of Hearths, Wonderwerk, Pomongwe, and the open-air sites of Elandsfontein, Mwanganda, Namib IV and Kathu Pan." *(1984: 186.)* [20]

Kathu Pan also contains stratified deposits from both the ESA and the MSA. Most Southern African archaeological sites that inform our knowledge about the MSA are along the coast and are in caves or shelters. Kathu Pan is unusual in being both an open-air site, and being in the interior. Material discovered at the site formed a central element of Klein's theories about hominid scavenging behaviour in southern Africa (Klein, 1983; Klein, 1984; Klein, 1988; 2000).

> "Traditionally, the bones associated with Acheulean artifacts at sites such as Elandsfontein and Kathu Pan have been interpreted as Acheulean butchering

[20] Further South African sites fitting this description have likely been found since 1984, but the implied rarity and significance here is still relevant.

> debris. If this is so, southern African Acheuleans were formidable hunters, because the most common animals at Elandsfontein and Kathu Pan are elephants, rhinoceroses, buffalos, and other large ungulates. However, at both sites there is a problem … The possibility arises that most of the animals represented at open-air sites like Elandsfontein and Kathu Pan were killed by carnivores or died naturally near ancient water sources. The concentration of artifacts at such sites may simply reflect the fact that people were also attracted to the water sources, without demonstrating that they regularly killed or even scavenged large ungulates there." *(Klein, 1983: 31.)*

Excavations at KP1 uncovered a sequence spanning Earlier Stone Age Acheulean (Strata 4b); Earlier Stone Age Fauresmith (Strata 4a); Middle Stone Age (Stratum 3); and Holocene (Strata 2-1). Stratum 4a has been historically given an age of approximately ~750 000 BP based on associated *Elephas reckii reckii* tooth fragments *(Beaumont, 1990).* More recent work has established a "minimum OSL age of 464 ± 47 kyr and a combined U-series–ESR age of kyr" for Stratum 4a. *(Porat, et al., 2010: 269).* Evidence of pigment utilization and transportation was obtained from Stratum 4b, some of the earliest evidence of this behaviour. *(Beaumont, 1990; Beaumont & Vogel, 2006; Beaumont & Bednarik, 2013; Bednarik, 2013). 140 107 – 542.)*

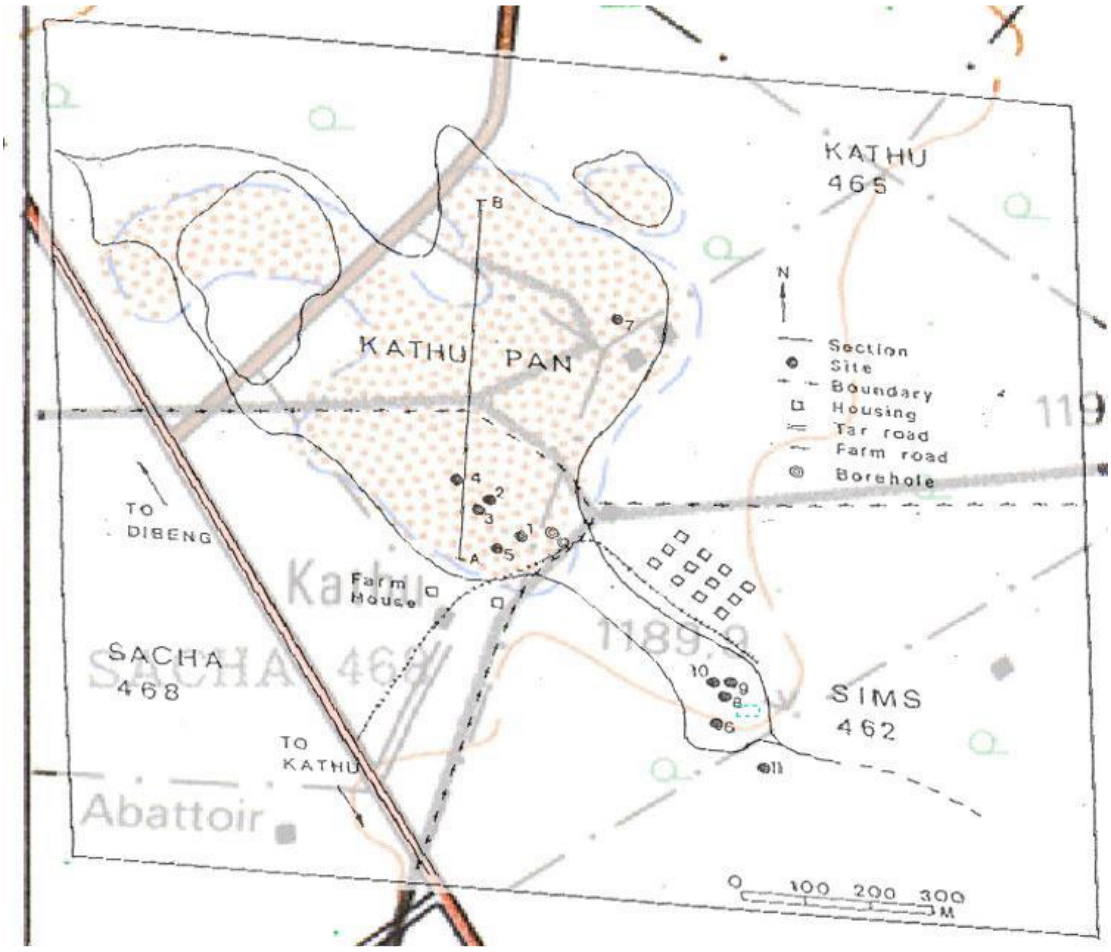


Figure 46. *Beaumont's 1990 map geo-rectified over 2723CA-1972.*

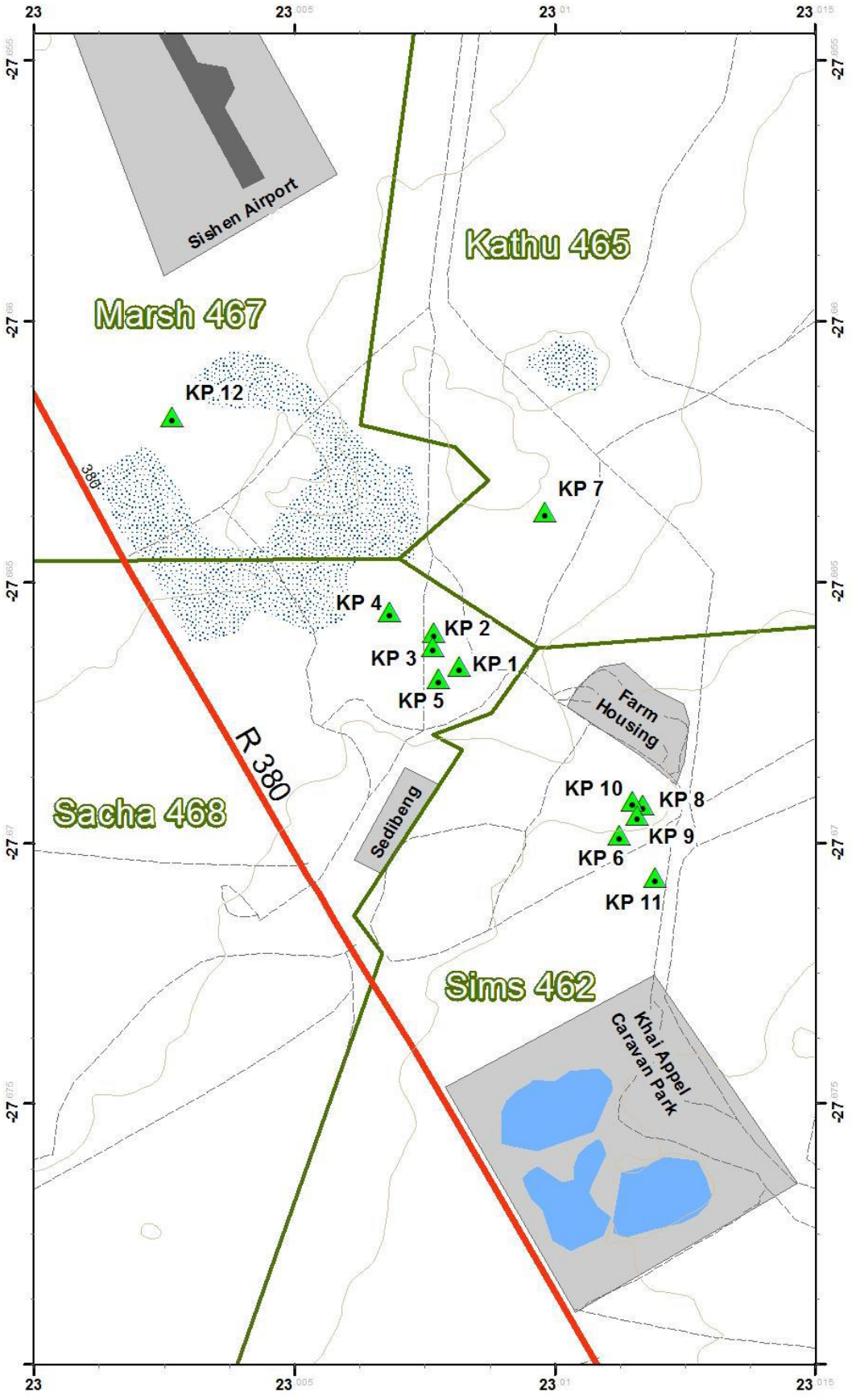


Figure 47. *Estimated locations of KP1-KP12 based on 2013 field work.*

Research by Jayne Wilkins for her PhD thesis has demonstrated intentional blade production in Stratum 4a, thus establishing this context as among the earliest known sites with evidence of this technology. *(Wilkins, 2012; Wilkins & Chazan, 2012).* Further research by Wilkins and others suggests that points in the Stratum 4a assemblage were used as spear tips, also the earliest known evidence of this technology. *(Balter, 2012; Wilkins, 2012; Wilkins, et al., 2012).* In addition to the scientific significance of the deposits at Kathu Pan, the site also has made a significant impact on South African culture and popular understanding of the Earlier Stone Age. Of particular interest among the finds discovered at Kathu Pan is a large (MD=230mm) teardrop shaped handaxe knapped in banded ironstone. *(Figure 32. MCGM-6538-148.)*[21] It was found by Peter Beaumont in Stratum 4b in Unit D21 of KP1. *(Beaumont, 1990: Figure 25).* The handaxe is exceptional in its size and symmetry. Since its discovery, it has become symbolic of the Earlier Stone Age in South Africa. It has been used by the South African Post Office as emblematic of this time period in a series of stamps issued on 28 June 1998 (Figure 8). This object had previously travelled as part of the Royal Academy of Arts exhibition *Africa, the art of a continent. (Phillips, 1996).* After London, the handaxe was also displayed at the Martin-Gropius-Bau, Berlin, and the Solomon R. Guggenheim in New York as part of this traveling exhibit. The site, along with this object specifically, has also inspired literary work including poetry (Cope, 2005) and a travelogue. *(Martin, 2008.)*

Figure 48. *MCGM-6538-14 as illustrated in FDC no. 6.78.*

[21] ***http://www.sahra.org.za/content/mcgm-6538-14***

Addendum 4. Historical maps associated with the study area.
4.1. De Mist map 1802.

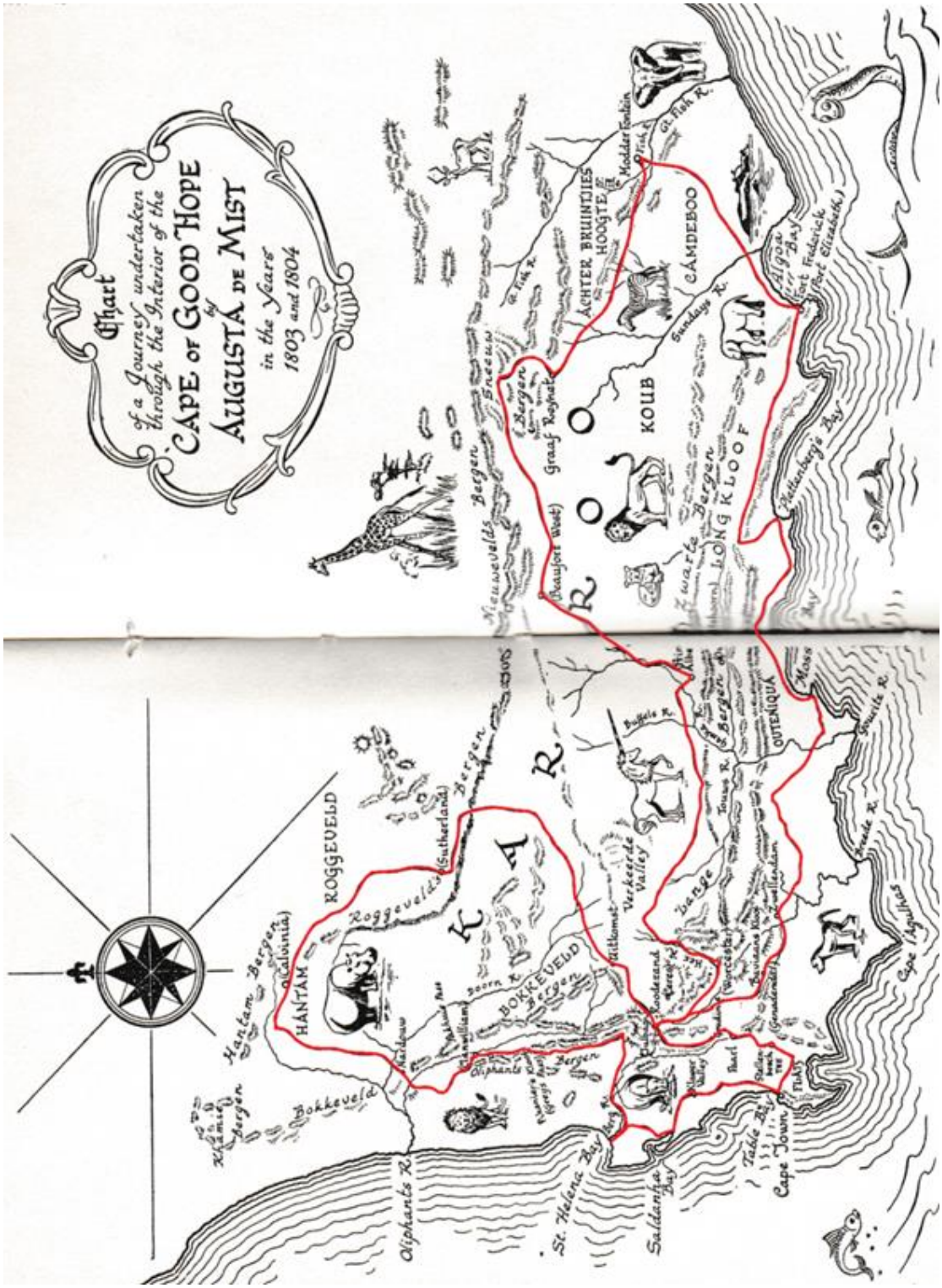


Figure 49. (De Mist ND: 58.)
The route taken by the Party under Commissary-General Uitenhage De Mist during his 1802-1803 presentation of the new Governor and Commander-in-Chief, General J.W. Janssens, to the people of the Colony. This was after the British returned the Cape to Dutch authority after the treaty of Amiens. Note that there is no travelling to the north during this period. (Uitenhage De Mist ND: 58.)

4.2. Campbell map south of the Orange River 1818.

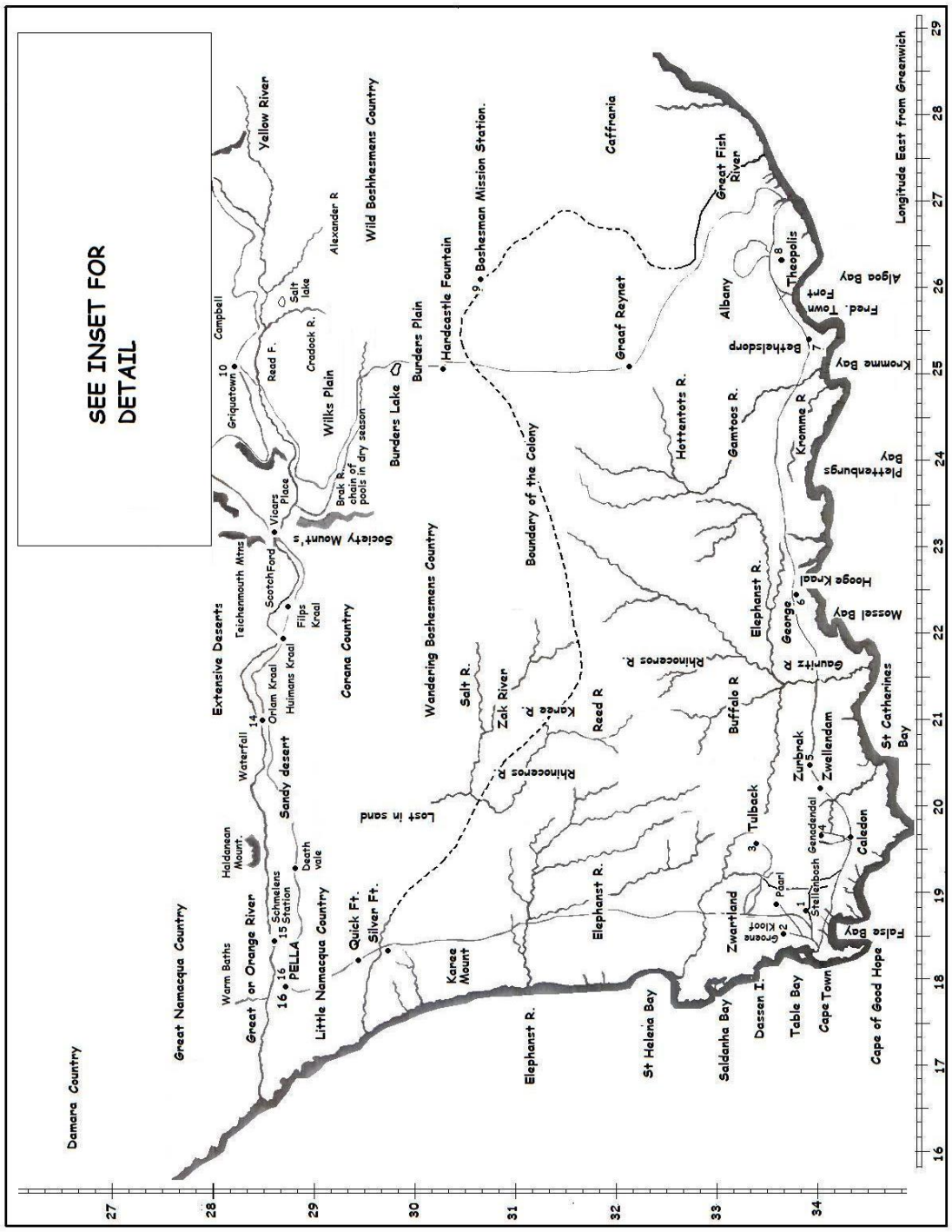


Figure 50. *Map 1 of the journey/s (1811-1814 alone and (1819-1820 with John Philip) by John Campbell south of the Gariep – or Orange River.*

He reported extensively upon the villages and inhabitants of the region to the London Mission Society for the purposes of establishing Mission Stations outside the northern frontier of the Cape Colony. He basically established the route to the area then occupied by the forces of Mzilikazi to the northeast. Eventually Moffat travelled to Mzilikazi to facilitate the tentative establishment of the Mosega Mission station. ***(John Campbell, 1818.)***

4.3. Campbell map north of the Orange River 1818.

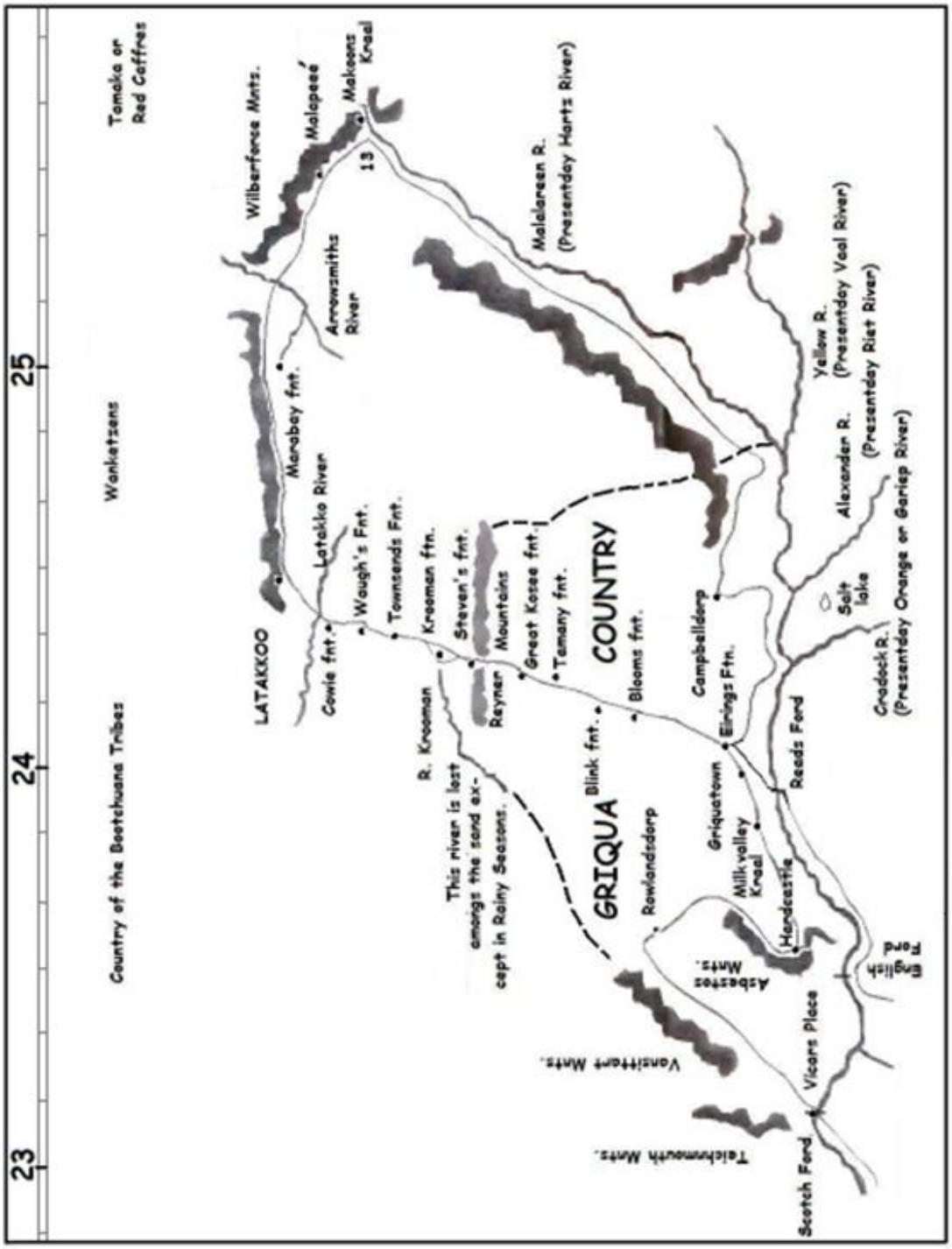


Figure 51. *Map 2 of the journey/s (1811-1814 alone and (1819-1820 with John Philip) by John Campbell north of the Gariep – or Orange River.*

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4.4. Solomon territorial reconciliation map of Griekenland West. 1871.

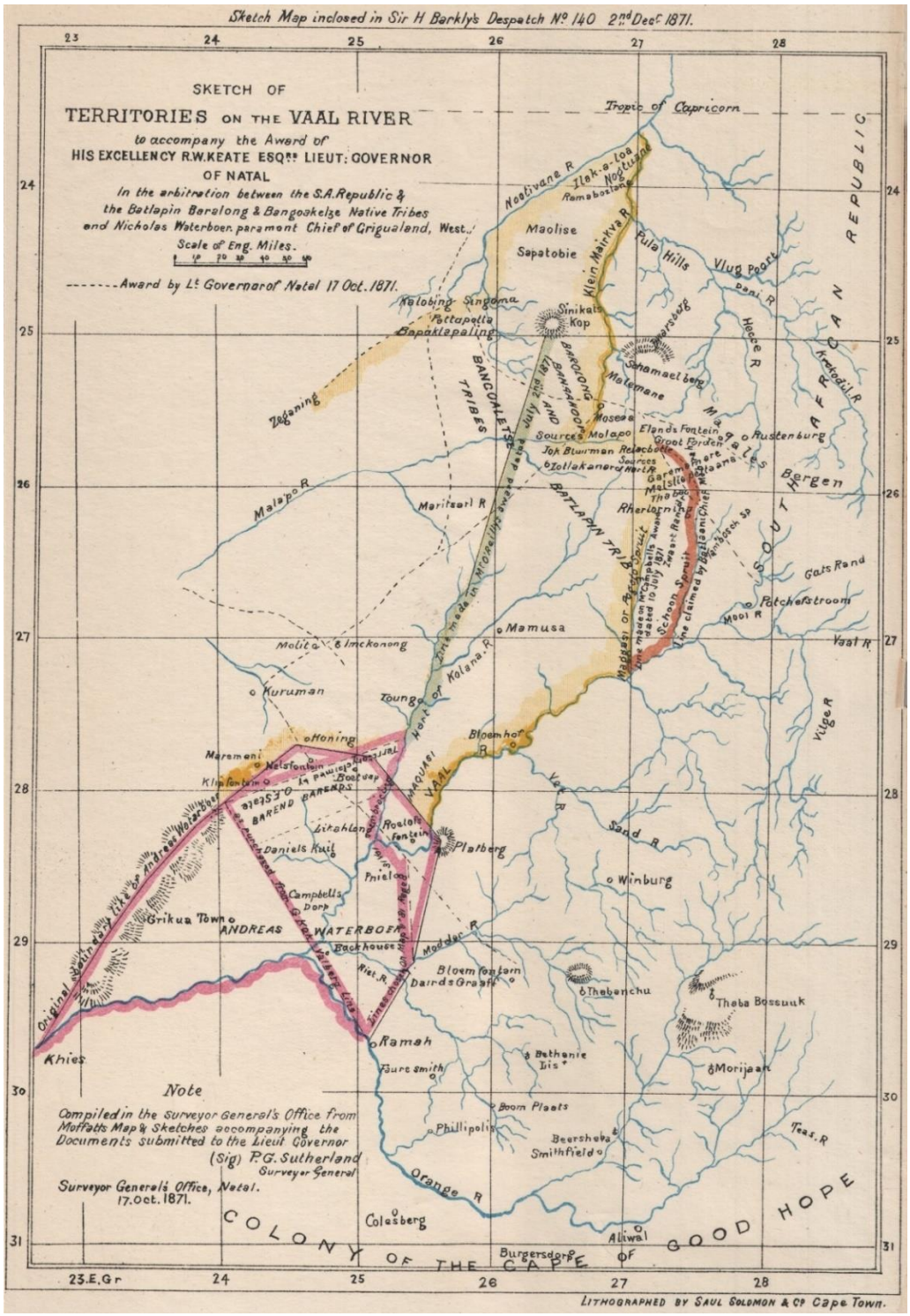


Figure 52. (Saul Solomon, 1871.)

Map delineating agreed upon borders regarding areas separating the different cultural groups occupying the region as authorised by the Governor of Natal.

This map was possibly compiled to settle the disputes regarding ownership of the land on which mines surrounding Kimberley and the alluvial diamonds along the Vaal River drainage line was located.

4.5. British Imperial map of the Kuruman District, 1901.

***Figure 53**. British Imperial map of the Kuruman District, 1901**. (Annotated in colour 2022, S.M.Miller.)*

Map showing official roads tracks churches and occupied farms. Also, we see large tracts of land designated as special reserves. Important to note is the water sources and drainage lines (or rather the absence of) marked in green.

4.6. British Imperial map of the Kuruman District, 1901.

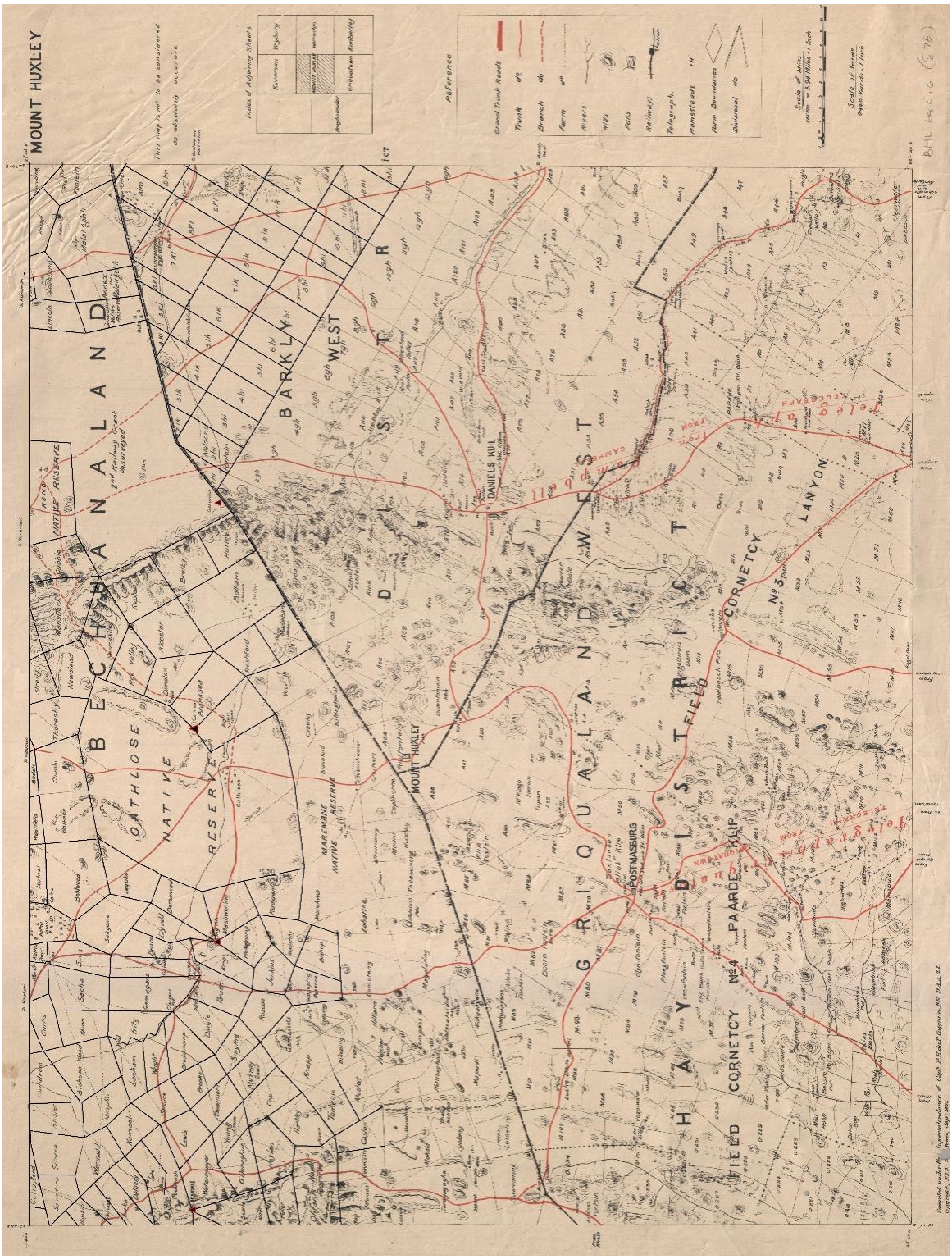


Figure 54. (British Imperial map of the Kuruman District, 1901.)

Map showing official roads tracks churches and occupied farms. Also, we see large tracts of land designated as special reserves. Important to note is the water sources and drainage lines (or rather the absence of) marked in green.

4.7. Acocks vegetation map circa 1948.

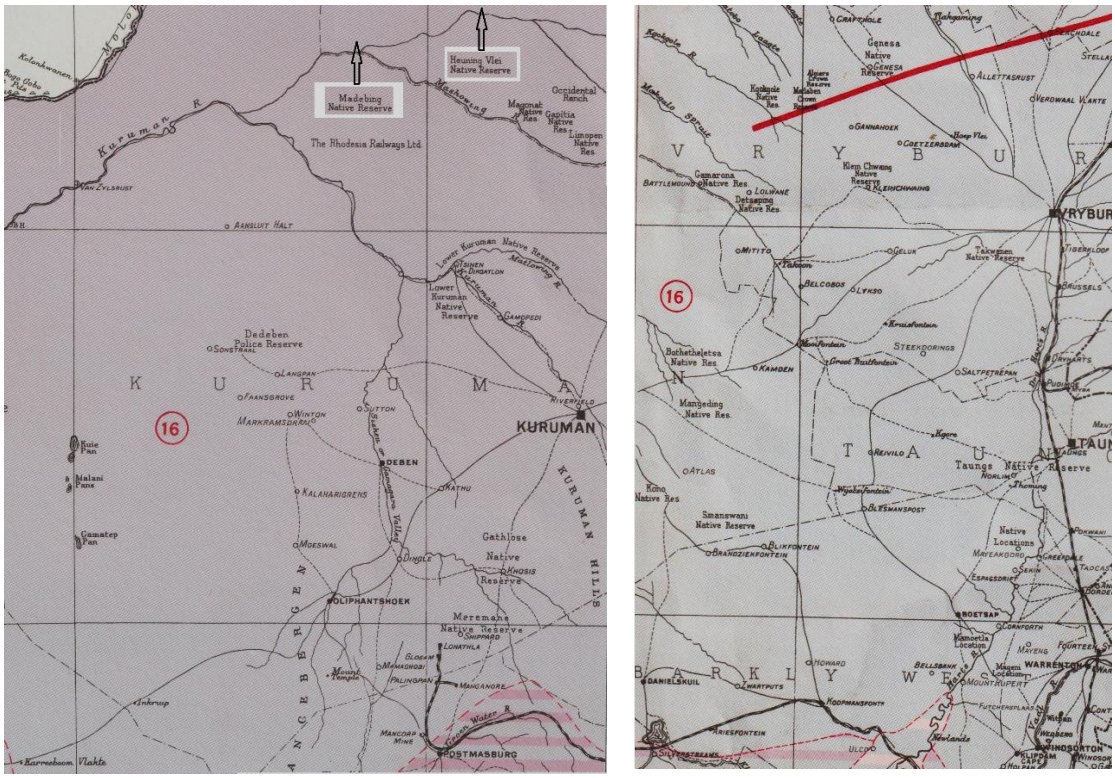


Figure 55. *Map showing the vegetation distribution in the study area.* ***(Acocks circa 1948.)***

It confirms the low density of occupation that has through the ages has designated human presence.

Addendum 5. The Mission Stations of Griquatown, Kuruman and Mosega.

(A recording of important Mission Stations in the greater region for purposes of delineation of the manner of indigenous people residing in the general area.)

5.1. Griquatown.

In 1801 William Anderson and Cornelius Kramer, of the London Missionary Society, established a Station among the Griqua at Leeuwenkuil. *The site proved too arid for cultivation.* In about 1805 they moved the station to another spring further up the Valley and called it Klaarwater. *Their second choice was little better than their first, and for many years a lack of water prevented any further development.* The name of the Settlement was changed later to Griquatown or Griekwastad in Afrikaans. They lived among a mixed nomadic community of the Chaguriqua tribe and "Bastaards" (people of mixed origin) from Piketberg. Their two leaders Andries Waterboer and Adam Kok II later had a dispute and Kok left for Philippolis.

From 1813 to 17 July 1871, the town and its surrounding area functioned as *Waterboer's Land.* Waterboer himself lived in a "palace", which in reality was a normal house with six rooms. A Monument for Waterboer was later erected near the Town's Hospital.

Dr. Robert Moffat and his wife Mary, on their way to the Town of Kuruman, were residing in Griquatown when their daughter, also Mary (later Mrs. David Livingstone), was born in 1821. There is now a museum that is dedicated to her rather than to the founder of the Town, William Anderson.

Waterboer's Land. Waterboer himself lived in a "palace", which in reality was a House with six rooms. A Monument for Waterboer was later erected near the Town's Hospital. Dr. Robert Moffat and his wife Mary, on their way to the Town of Kuruman, were residing in Griquatown when their daughter, also Mary (later Mrs. David Livingstone), was born in 1821. There is now a museum that is dedicated to her rather than to the founder of the Town, William Anderson.

Griekwastad was later the capital of British Colony, Griqualand West from 1873 to 1880, with its own flag and currency, before it was annexed into the Cape Colony.

Nowadays, the town is best known for the semi-precious stones found there, particularly tiger's eye and jasper. Sheep farming occurs with *dorpers*, a South African breed. [22]

Nowadays, the town is best known for the semi-precious stones found there, particularly tiger's eye and jasper. Sheep farming occurs with dorpers, a South African breed.
The name was changed to *Griquatown* in 1813 by the Rev John Campbell. It was visited in October 1811 by William Burchell, who reported extensively upon the village and its inhabitants: -

[22] An infamous murder in Griekwastad took place on a farm on Easter Friday, 2012. A 15-year- old youth was accused of the murders of Northern Cape farmer Deon Steenkamp, 44, his wife Christelle, 43, and daughter Marthella, 14. The son, Don Steenkamp, aged 17, the only surviving member and brother to Marthella, stood to inherit a sizable share of the inheritances. A true Crime Novel has been written about the infamous murders by one of South Africa's leading reporters, Jacques Steenkamp, entitled 'The Griekwastad Murders: The Crime that Shook South Africa'.

"Not far from here, is the spot where these missionaries first established themselves in 1801, at a place called Aakaap by the Hottentots, or Rietfontein (Reed Fountain) in Dutch. They afterwards removed to The Kloof, but finally fixed their head-quarters at Klaarwater, as being a situation more central with respect to the different out-posts, or kraals, occupied by this race of Hottentots."

"I accompanied the three missionaries round the village, to take a cursory view of the different parts of it; the huts of the Hottentots, their own dwellings; the house for religious meeting and school instruction; their storehouse, and their garden. When I considered that this little community, and the spot on which I stood, were nearly eight hundred miles deep in the interior of Africa, I could not but look upon every object of their labours with double interest; and received, at that moment a pleasure, unalloyed by the knowledge of a single untoward circumstance."

"The Hottentots peeped out of their huts to have a look at me; and I fancied they appeared glad at having one more white man amongst them. The above engraving is a view of the Church. The furthest building is the dwelling-house of one of the missionaries; and the intermediate hut is a storehouse. Beyond these is shown a part of the ridge, which is represented at the head of Chapter 20."

"From the moment when I decided on making Klaarwater in my way to the Interior, I naturally endeavoured to form, in my own mind, some picture of it; and I know not by what mistake it arose, that I should conceive the idea of its being a picturesque spot surrounded by trees and gardens, with a river running through a neat village, where a tall church stood, a distant beacon to mark that Christianity had advanced thus far into the wilds of Africa. But the first glance now convinced me how false may oftentimes be the notions which men form of what they have not seen. The trees of my imagination vanished, leaving nothing in reality but a few which the missionaries themselves had planted; the church sunk to a barn-like building of reeds and mud; the village was merely a row of half a dozen reed cottages; the river was but a rill; and the situation an open, bare, and exposed place, without any appearance of a garden, excepting that of the missionaries."

"It would be very unfair towards those who have devoted themselves to a residence in a country, where they are cut off from communication with civilized society, and deprived of all its comforts, to attribute this low state of civilization and outward improvement, to a want of solicitude on their part. Their continual complaint, indeed, was of the laziness of the Hottentots, and of the great difficulty there had always been in persuading them to work, either on the buildings or in the garden; and in this complaint there was too much truth."

"A small channel, conducting from a spring in the upper part of the mead to some huts and corn-land below, supplied us with plenty of good water. The station, like everyone in the vicinity, was open and exposed; but it had a pleasant prospect of the whole of the village, to which a narrow path led across the mead."
"The neighbourhood was first reconnoitred, to ascertain where firewood was to be found; but this article had been every-where consumed by the inhabitants of the kraal, and was to be procured only at a great distance."

"This being Sunday, I attended the service in the church, or meeting-house. The building which they call so was rudely built of rough unhewn timber and reeds, covered with a thatched roof, and having a smooth, hard earthen floor, kept in order by being frequently smeared with cow-dung, in the manner practised by the colonists. Within, the sides were plastered with mud; and, being whitewashed with a kind of clay, which is found near the river, they looked tolerably clean; but the rafters and thatch constituted the only ceiling. The eaves were about six feet from the ground. The upright posts, the beams and rafters, were either of Acacia or Willow, and tied together with strips of Acacia-bark. The space within the building was a long parallelogram, which, when quite filled, might perhaps contain a congregation of three hundred persons, in the way in which them Hottentots squat on the ground; for there were no seats, excepting about a dozen, which some of the more civilized of the auditors had provided themselves with. On one of the longer sides the door-way was placed, and opposite to it, a pulpit raised a step above the floor."

"This is the ordinary routine of the business of the mission as I observed it during the four months which, at different times, I spent at Klaarwater. And, with respect to its effects in forwarding the object of it, I cannot say that they appeared to me very evident: certainly, I saw nothing that would sanction me in making such favourable reports as have been laid before the public."

"The village itself is situated close on the eastern side of a low rocky ridge, composed of an argillaceous slate or stone, divisible into thin lamina like that of the Asbestos mountains; between which, however, no asbestos has hitherto been observed. On one side is a long grassy mead of irregular shape, and containing above a hundred acres. This, being the lowest ground, receives the draining and springs of the whole valley, and is, in some places, of a boggy nature. It is covered with coarse grass, and, by a little trouble and management, might be converted into gardens for the Hottentots, in the same manner as at Genadendal, and seems excellently suited for the purpose. The soil is a dark mould; and springs, rising in different parts of it, yield a never-failing stream of water during the whole year. I found this water clear and wholesome at all times: it is, however, of a calcareous nature, as is evident by the substance deposited on the roots and stems of the reeds and sedge along its course. All these springs, collected into a small rill, take their course through the mountains southward, by an outpost called Leeuwenkuil (Lion's-den), and passing by Grootedoorn (Great-thorn), another outpost, join the Great River, after running a distance of forty miles."

"The whole substratum of this part of the country, for many leagues northward and eastward, is a hard limestone rock of primitive formation; and on this, rest the laminated argillaceous mountains. This limestone rock in no place rises into mountains, but often forms the surface of a great extent of country. I never saw in it any marks of extraneous fossils. The soil on the higher grounds surrounding the valley, is remarkably red, being a mixture of sand and clay, which produces bushes and a variety of plants; but is subject to great drought during the summer."
"The number of (Khoikhoi) houses immediately round the church, is not greater than twenty-five; but at a distance, within the same valley, nearly as many more are scattered about; and there are three or four at Leeuwenkuil, a place between

the mountains, and about a mile and a half distant. Within fifty miles, in various directions, are nearly a dozen other out-posts; but they are not always inhabited: of these, the largest is the Kloof."

"The aggregate number of inhabitants at Klaarwater and the out-stations, amounted in the year 1809, as I was informed, to seven hundred and eighty-four souls; and it was supposed that at this time it had not decreased: for, although some had left them and returned into the Cape colony, others had been added from that quarter in an equal proportion."

"The Koras and (San) living within the Klaarwater district, cannot be considered as belonging to the establishment, since they show no desire to receive the least instruction from the missionaries, nor do they attend their meetings, but continue to remove from place to place, a wild independent people."

"The tribe of (Khoikhoi) now at Klaarwater, had its origin from the two families of the Mixed Race, of the name of Kok and Berends, who, about forty years ago, preferring their freedom on the banks of the Great River to a residence within the Cape colony, where they had acquired a few sheep in the service of the farmers, emigrated thither from the Kamiesberg with all their cattle and friends. These were, from time to time, joined by others of the same race, who found their life under the boors not so agreeable as they wished."

" Thus, their increasing numbers rendered them an object worth the attention of the missionaries; whose station amongst the Bushmen at Zak River, happened to break up about the year 1800. These Hottentots appearing to offer an easier and more promising soil for their labours, the missionaries attached themselves to them, and followed them in all their wanderings along the river, till they were at last persuaded to remain stationary at Aakapp, and finally at Klaarwater; which, at the time they took possession of it, was a (San) kraal."

"The existence of this little community of (Khoikhoi), was well known to the colonists under the name of the Bastaards, because the whole of them were at that time, of the Mixed Race. They had always professed, among themselves, the Christian religion; and at one time were the dupes of a religious impostor, named Stephanus."

"The dwellings of the missionaries stand close together in a line with the meeting-house, forming, with two others in a parallel line, a kind of street, in the middle of which stood, at this time, a stuffed camelopard, which, being much weather-beaten and decayed, was soon afterwards taken down. This object, reminding me that I was in the country where these animals were to be beheld alive, added a pleasing and very interesting feature to this little village."

*"The only piece of masonry was the foundations of a large building, intended to comprise under one roof a meeting-house and the dwellings of the missionaries; but its only use is to prove that a plan of rendering the mission respectable in its appearance was once entertained. It was commenced, I believe, about seven years before my visit to Klaarwater, and was carried on with spirit by the united labour of the whole community, until the walls reached the height of five or six feet; and in this state it has rema*ined ever since, and still continues, without any

prospect of being completed. This neglect is attributed to the temper of the (Khoikhoi), who, like children pleased with a new toy, which is soon thrown aside, at first laboured readily at the work, and would not have deserted it if three or four months could have brought it to a conclusion; but finding, after the novelty of the job had worn off, that nothing was left but hard labour, their little stock of exertion and patience became exhausted, and the thing was given up as an undertaking of too great a magnitude. There was no want of materials; since their mortar was obtained close at hand, being merely mud, and the adjoining hill supplied the stone, which was formed by nature of shapes the best adapted for masonry: while timber might easily be procured from the banks of the Gariep, or even much nearer. *The business of sawing planks has not yet been introduced here;* but two or three people work as blacksmiths, although in a very bungling manner."

"The only means of rendering this mission permanent, is to induce these people to acquire property in immoveable buildings, and in gardens well stocked with fruit-trees. These they would be unwilling to desert, on account of the labour and time that would be required to procure the same advantages on another spot. To persuade them to erect such buildings, had been, as Mr Anderson informed me, his constant endeavour; and it was not without reason that he complained of the laziness of the people, and of their unwillingness to regulate their conduct by his instructions and advice. It is certainly not an easy task to change the customs and prejudices of any people; but still, however, it may in many cases be done; and, whenever improvements more conducive to their happiness can be substituted in the place of their own rude notions, the attempt may conscientiously be made, and, to a certain extent, persevered in".

Burchell also described *Captain Dam's* homestead as follows: -

"We also visited Captain Dam, as he is called, the (Khoikhoi) chief of Klaarwater, who holds a sort of authority over one-half of this tribe (of Mixed Khoikhoi); while Captain Berends is, in like manner, the regulator and commander of the other half."

"His name was Adam Kok: he appeared to be under the middle age, with a countenance indicative of a quiet disposition. My visit to him required no explanations, as the missionaries had already made him acquainted with everything respecting me. His hut, which was close behind the missionary's, was not better than those of other Hottentots; but was made of mats, in the usual hemispherical form."

"The vignette at the head of Chapter 20 is a representation of Captain Dam's hut, and of his wagon of which mention is made in the following chapter. Behind them are seen some of the trees of the missionary's garden, enclosed by a hedge of dry bushes. The trunk of a tree is fixed up near the hut, for the purpose of preparing (or, as they call it, breyen) leathern reims, and for hanging game and various other things upon. Such an apparatus is called by them, and by the colonists, who also make use of it, a Brey-paal. On the ridge in the distance may be seen, just above the Brey-paal, a part of the road leading to Ongeluk's Fontein".

Upon a subsequent visit, in 1812, Burchell commented upon the increase in size of the settlement at Klaarwater.

> *"At my former visit to this village, the number of mat-huts was twenty, it was now twenty-five. This increase of population was occasioned by the return home of those families who had been residing with their cattle on the banks of the Gariep during the dry season".*

In 1812 William Burchell also noted fluctuations in the Khoikhoi population of Klaarwater.

> *"On our road this afternoon, we met a party of men, women, and children, with their huts and all their goods, removing from Klaarwater to the Asbestos mountains. The whole family, with mats, sticks, utensils, and skins, packed all together on the backs of the oxen, and moving along with a steady pace, presented a curious group, which might have been fancied to bear some resemblance to the journeyings of the people of patriarchal days, notwithstanding the dignity, and splendid robes, with which modern painters have thought proper to invest them. At least, their bringing to recollection, a party of Gypsies in England, removing from one county to another, is an idea less fanciful and speculative. We stopped a few minutes to answer each other's questions as to the whence, the whither, the when, and the wherefore of our journeys; nor did I forget to ask the men if they would like a trip to Graafreynet."*

The next visitor of note to visit the Mission was John Campbell in June 1813 when Klaarwater changed its name to Griquatown.

> *"The whole people likewise resolved that henceforth they should be called Griquas, instead of Bastard (Khoikhoi), and the place called Griqua-town, instead of Klaar Water".*

Two months later, in August 1813, John Campbell also commented on local craft skills.

> *"Trades can scarcely be said to exist in Griqualand. There are some who may be termed bambus-makers, or makers of vessels of wood for holding milk or water. Some can do a little at smith's-work, in repairing waggons, and one man (Fortuyn at Hardcastle) can construct a waggon. From the appearance of the new meeting-house they are building, which stands unfinished, there must be tolerably good masons among them. The women make mats of rushes. Upon the whole, I believe this mission has been a great blessing to this part of Africa".*

John Campbell returned to Griquatown in March 1820 when he recorded the following:

> *"I walked with Mr Helm to call upon some of the people in their own houses. Among others we visited a little cluster of huts about a quarter of a mile from the town. They have many dwellings, which are called round-houses, in the town; one such is at this little village, it is built of stone about the height of five feet, and fifteen feet diameter, with a conical roof, a door, and one window. The same Griqua who inhabited the round-house was also building a square one of stone, about thirty feet by twelve, with a door and three windows. The walls were well built and nearly finished. When completed, he meant to use the round-house as a store. Three Griqua women, dressed in the European fashion, were sewing some*

> *cotton articles; three or four others came from the huts dressed in the same manner; to all of whom I made presents of needles, thread, thimbles, etc".*

In about 1836 Arbousset and Daumas commented upon the condition of the Khoikhoi population of Griquatown: -

> *"They now live at Griqua Town and Campbell's Dorp. They have given up their miserable huts for houses healthier, and more commodious; and their sheepskin cloaks for European clothing.*

Griquatown was subsequently visited by James Backhouse in September 1839 when he recorded the following: -

> "*Griqua Town is situated on the edge of an extensive, limestone plain, and at the foot of a range of low hills of silicious schistus, producing yellow asbestos. Its original name was Klaarwater, "Clearwater", taken from its clear and copious spring, which not only supplied the town, but watered the vale extending toward the Orange River. At the time of our visit, a drought which had lasted about six years, had reduced this spring to a standing pool; the water did not reach the surface by a foot and a half, notwithstanding that a few smaller springs, which were more superficial, within two or three miles, continued to flow. The gardens and adjacent lands were desolate; a solitary peach-tree and a few fig-trees were all that survived in the former; and few of the Griquas remained upon the place. Many of the houses, that had been forsaken in consequence of the drought, were in ruins. The occupied houses were those of the Chief, the Missionaries, the school-teachers and a few others. But in the vicinity, there were some Basutu villages, inhabited by people who were rescued by the Chief, Andries Waterboer, from the Bergenaars, who were a horde of banditti that separated from the Griquas of this place."*
>
> *"In the annexed etching of Griqua Town, the houses of the missionaries and teachers, with the schools, the chapel, and some other buildings, form the irregular line on the left, and that of the chief, with two mat huts at the end, is at a distance, in front. Those at the foot of the bushy, schistose hill in the foreground were in ruins."*
>
> *"Many of the houses of Griqua Town were of raw brick, plastered with clay and cow-dung. Lime entered largely into the composition of the clay, and consequently, the brick would not stand when burnt; in the raw state it endured the weather well".*

Twenty years later, in about 1859, *John MacKenzie* was to paint a somewhat different picture.

> *"But some years before my first visit, the once prosperous villages of Gruiqua Town and Campbell had been ruined by the drying up of the fountains – the apparent strength of which had been the chief reason for their selection as sites for villages. At Griqua Town everything bore the evidence of former prosperity. But the gardens and fields were now parched up and quite uncultivated, while many of the houses were deserted and in ruins. The impression produced on our minds was one of sadness and disappointment. But when we had visited some of the neighbouring homesteads, and saw the manner in which the people were living, our feelings were considerably changed. Both in Griqua Town district and*

> *Philippolis we found some of the people in possession of houses, waggons, and clothing quite equal to those of many Dutch farmers".*

By the time Frederick Selous visited it in November 1871 Griquatown had fallen upon distinctly hard times:

> *"On November 9th we trekked, and reached Griqua Town the following day. This place, like Campbell's-dorp, must have seen better days, but was now almost deserted".*

5.2. Kuruman.

The *Kuruman Moffat Mission* at *Seodin* outside Kuruman, South Africa, traces its establishment, by the London Mission Society, to 1816, although the first settlement was not where the mission now stands but at 'New Lattakoo'. The move to the present site at Seodin was made in 1824. Missionaries William Edwards and Robert founded the mission but it was Robert Moffat, who joined them in 1820, whose name became synonymous with the Kuruman Mission. He with his wife Mary Moffat remained there until 1870. Having learnt Setswana, Moffat produced a complete translation of the Bible by 1857, in which year it was printed on the mission press at Kuruman - the first time that the Bible had been printed in its entirety anywhere in Africa, and the first time in a previously unwritten African language. *Kuruman*, was visited by John Campbell in March 1820, when it was still being referred to as New Lattakoo. He reported that: -

> *"We found a commodious place of worship had been erected, capable of containing about four hundred persons; and also, a long row of Missionary houses, furnished with excellent gardens behind. In front of the houses, a neat fence composed of reeds has been constructed, which improves the general appearance. We named the buildings attached to the Mission Burder's Row, after the Rev George Burder, Secretary to the Missionary Society.*
>
> *"The Missionaries', with the few Hottentots attached to the mission, have dug a canal from a distance of three miles above the town, by means of which the whole water of the Krooman is led into the extensive fields and gardens. I went to view this useful work after breakfast, and found extensive fields of (maize), belonging to the natives on both sides of the canal. Similar cultivation extends two miles higher up the river in the same direction. Though the Krooman be emptied by the canal, it soon becomes larger than before, in consequence of twelve or fourteen fountains issuing from the ground, about a quarter of a mile lower down than the dam, and which discharge nearly en equal quantity of water at all seasons of the year".*

John Burrow, who accompanied the Smith expedition in 1835, had this to say about the Station:

> *"The native town which lies at the back of the missionaries' is very large, and since the breaking up of Old Lattakoo considerably augmented since Mateebe left this. His eldest son has, I believe, been considered as the Chief although Mahura, Mateebe's brother, living at Old Lattakoo, transacted all business. I went one evening to see what they call a reed dance, which they always hold by moonlight, and first on arriving at the cattle kraal where it was held, I could neither make head nor tail of it. But on looking more attentively I saw in one part a number of people blowing with all their might into reeds of different lengths, making a most*

> *horrible, and at the same time ludicrous, noise. In the middle were a number of men dancing, or rather jumping, stamping, sweating and making fools of themselves, while the women ran round them, clapping their hands and hollowing like so many mad creatures. Walking round to the opposite side to get a better view of them I was astonished to see some of our people who, not seeing me, were enjoying the fun as much as the Bechuanas themselves".*

Burrow was followed four years later by James Backhouse who, in September 1839, recorded it as follows: -

> *"The Kuruman Missionary Station, which is sometimes called New Lattakoo, is situated by the side of the Kuruman River, a clear, permanent stream, which rises at the Little Kuruman, disappears at intervals, a few miles further from its source, and at length is only marked by a dry water course, except in rainy weather. At the Missionary Station, the back of which, is represented in the accompanying etching, its margin is planted with willows, and its waters are employed in irrigating some fertile gardens and corn-lands; below these, there is a piece of marshy ground, on which rice has sometimes been grown. The houses of the Missionaries, which are plain dwellings, in rural farm-house style, and the other buildings stand in a line, on the side of the road, opposite to the gardens. They are built of hard, dove-coloured limestone, and thatched. The chapel will hold upwards of 1,000 people. Behind the houses, there are several patches of the low, thorny, "Acacia Lattaku"; among these, the burial-ground is situated; it is marked by a few little piles of stones. Contiguous to the Station, there are several Bechuana villages; others are scattered more remotely on the side of the river, and in the adjacent country. Wood is so scarce, that the timber used for the roof of the chapel was brought from the neighbourhood of Misenga, distant about 200 miles".*

John MacKenzie visited Kuruman in 1859 and reported as follows: -

> *"The present station, however, was not commenced till A tract of about two miles of the country was bought by the missionaries from Mothibe, and paid for with articles which Mr Moffat had brought from Cape Town. Here were raised a large and substantial church, and two good dwelling-houses, all of stone. I am about to speak of the higher moral and spiritual structure which has been reared in this district; but having myself made some acquaintance with the house-builder's tools in Africa, I feel bound to mention with respect the solid stone walls and the well-constructed roof of the Kuruman church. The station was laid out by Mr Moffat, who to his services as land-surveyor and architect added with equal diligence the humbler but no less necessary and arduous callings of quarrier of stones and hewer of timber for the church. The walls were built by well-qualified stone-masons, Millen and Hume. The roof was the work of the Rev R Edwards, for more than the years connected with the Kuruman mission, afterwards resident at one of the stations broken up by the Dutchmen of the Transvaal, and now missionary at Port Elizabeth.*
>
> *These buildings were completed in 1839. The Kuruman station is one of those "marks" in the country which would remain to testify to the skill and power as well as Christian perseverance of its founders, were the white men all expelled*

from the country, and driven back into the sea, according to the dreams of (Black) soothsayers"[23].

5.3. Mosega.

After the disabling raid on Khaditshwene the remnants of the Bahurutsi reassembled at *Mosega* under Mokgatla. Rex *(1971: 11-15)* now tells us that in *1826* Andrew Geddes Bain[24] and John Burnet visited the areas reaching Letubaruba some 90 miles (one hundred and fifty kilometres) to the northwest of Mosega. In *1829* Robert Schoon and William McLuckie visited Mosega, after hearing of the presence of Mzilikazi, that at that stage, was based to the near the present-day Pretoria (Tshwane.) These two were well received by the fearsome Mzilikazi, and he sent two of his senior induna's back with Schoon and McLuckie as ambassadors to visit the Cape, Colony. Moffat, on the return of Schoon and McLuckie to Kuruman, decided to visit the Matabele regent with the purpose of obtaining permission for the mission station envisaged by the L.M.S. to be established amongst his people. He accompanied the ambassadors[25] and on his way visited Mosega as well. He described these human remnants from Khaditshwene as ...*these had congregated in a glen, and subsisted on game, roots, berries, and the produce of their cornfields, having been deprived of their flocks by the Manatees...*

Owing to heavy rain delaying his departure to Mzilikazi he stayed at Mosega for a number of days meeting people that remembered the visit of John Campbell in 1920. Moffatt's eventual meeting with Mzilikazi, and the obtaining of permission to establish a mission station, is well described in his journals and does not need elaboration on at this point.

Rex (1971: 15-30) describes in detail the establishment of the French missionaries at Mosega. The main agent behind this effort was again the energetic Dr John Philip. During a visit to the Parisian Mission Society, he had recommended the establishment of French clergymen to the northeast of Kuruman and by middle *1830*, a number of these novices had arrived in the Cape Colony. The reverends Prosper Lemue and Samuel Rolland advanced from Kuruman in May *1831*, and reached Mosega a month later in June[26]

Being well received by Mokgatla they were soon pointed out a site to establish themselves. Even so, it was clearly established by Mokgatla that he was under submission to Mzilikazi and that Mzilikazi's final permission was awaited. The French party then returned to Kuruman to await the outcome of the disastrous raid of the Griqwas on Mzilikazi and only in February 1832 the group, now bolstered with the presence of the reverend Jean Pierre Pellissier, were able to return to *Mosega*.

[23] If the Rev John McKenzie was alive today, he would have been rather surprised by his prediction of the durability of Colonialism. (Note by S. M. Miller.)

[24] Not to be confused with John Thomas Baines, the well - known painter of South African land and townscapes.

[25] One of these was Mcumbate (Nombate.)

[26] According to their diaries they experienced snow on their way as well as bitter cold weather conditions.

Here they started their endeavours by creating a water furrow system and planned a town with a central square [27] where they hoped that the Bahurutsi would come and build dwellings in European fashion along streets of thirty feet in width. The missionary dwelling was supposedly located at the western side of the square, and is said to have been seventy feet long, fourteen feet deep, and the walls eight feet high under the beams.

Even though all the above was planned and in the process of being executed, a summons reached the French to visit Mzilikazi at a location apparently on the Tolane River.[28] Giving heed to this summons, the reverend Jean Pierre Pellissier, paid a visit and apparently provisionally received permission for a second mission station amongst the Matabele.[29] From the outset, it was the intention of the French to leave reverend Prosper Lemue to minister to the Bahurutsi while the two reverends Samuel Rolland and Jean Pierre Pellissier were to labour for the souls of the Matabele at the new station.

With the attacks of Dingaan's impis from the east much unrest ensued. The French were summoned to Mzilikazi, but none of their servants wished to accompany them to the protection of Mzilikazi. It was then decided to abandon Mosega and the French party returned to Kuruman in June 1832[30]. Moffat intercepted this retreating party and endeavoured to convince them to return to Mosega and the protection of Mzilikazi, but to no avail. The French eventually then established the *Motito* mission station where the reverends *Lemue* and *Rolland* remained while *Pellissier* eventually founded the *Bethulie* mission station.

Soon after this disastrous retreat, the expedition of the Cape of Good Hope Association of Exploring Central Africa in 1834 under Dr Andrew Smith aimed themselves again at this turbulent region.[31] With the assistance of Moffat, now a confident of Mzilikazi, they reached Mosega to witness the remains of the labours of the French. Mzilikazi had kept his promise to Moffat to not destroy the work of the missionaries, but nature had taken its toll.

Moffat in his own diary wrote a long description of what remained but reminiscing states *...I pensively mused on the mysterious providence that permitted the cheering expectations of our brethren to be blasted when just beginning to bud, and allow pagan darkness to overwhelm and extinguish the rays of gospel dawn. I seem I heard Satan saying, it is at your peril to resume the mission...*

In the ensuing encounter with Mzilikazi on the 15th of May *1835*, Moffat again acquired permission for the re-establishment of mission work in Marico this time by Americans from the American Board of Commissioners for Foreign Missions. Again, we find the machinations of Dr John Philip at the base of this attempt. In correspondence between Dr John Philip and John B. Purney a student from Princeton Theological School in 1832, we learn that Purney felt

[27] Rolland writes in May 1832 that the central area on which a church is planned to be built was three hundred feet square. A school house was planned to be based on the north side of the central area of the town.

[28] It is thought that this is where Kalipi, the most senior of Mzilikazi's generals lived.

[29] It was Pellisier's opinion that Mzilikazi was more interested in the military ability of the Griqua than in his own heavenly future, which is understandable of the political situation that was developing.

[30] In retrospect it was possibly for their protection against the agents of Dingane that Mzilikazi issued this recall. If he wanted to do them harm, they could have been executed at Mosega or during their retreat to Kuruman at a nod of his head.

[31] For a full account of this see Lye 1975.

that *...they felt they must return to Africa something for which she had suffered at the hands of America...*[32]

Dr. Phillip magnanimously offered the countries of the Zulus and the Matabele as fields of labour to Purney without much considering the attitude of these peoples. However, the American clergy reacted in a positive manner and soon afterwards Henry Isaac Venable, Dr. Alexander Ervin Wilson, the reverend Daniel Lindley and Aldin Grout was approved for mission work at the southern tip of Africa. In 1835, the name of Dr. Newton Adams was added to the list with the aim to comply with Dr John Phillip's suggestion.

In contrast to the three French gentlemen, the American contingent were to be sent as married couples and in November 1834 the group collected in Boston and on the 3rd of December they sailed for Cape Town. After their arrival in Cape Town in February 1835 they spent six weeks at the house of Dr. Phillip and the Lindleys, Venables and Wilsons were posted to the north where in May 1835 they reached the now then already three decades old Griqua mission station of the reverend Isaac Hughes. Here they remained four seven months, biding the time for news from Mzilikazi through the expedition of Smith and Moffat. In the mean-time they familiarised themselves with appropriate language skills, especially IsiNdebele.

Only in January 1836 were the reverend Daniel Lindley and Henry Isaac Venable, to leave Kuruman to visit Mosega, which they reached on the 9th of February. Typical of Mzilikazi he let them wait for an audience but in the meantime gave permission through Kalipi that they may commence their labours.

After some deliberation, they established the fact that the original location chosen by the French was the best and that the water furrow and ruin of the French's dwelling could be reused. With the assistance of one Adolf, a person of colour, and other local assistants they started on the rebuilding of the ruin. This they first demolished to its foundations and extended it with fourteen feet in length.

On the 7th of April *1836* Lindley and Venable visited Mzilikazi in company of *Baba Buijs*[33] where the Matabele council provisionally granted them permission to continue their labours as missionaries with provision that their land grant was still under consideration. In this meeting, Mzilikazi promised to provide the missionary party with food. Soon after returning to Mosega, they completed the house, providing it with clay floors, locked it and returned to Kuruman in May.

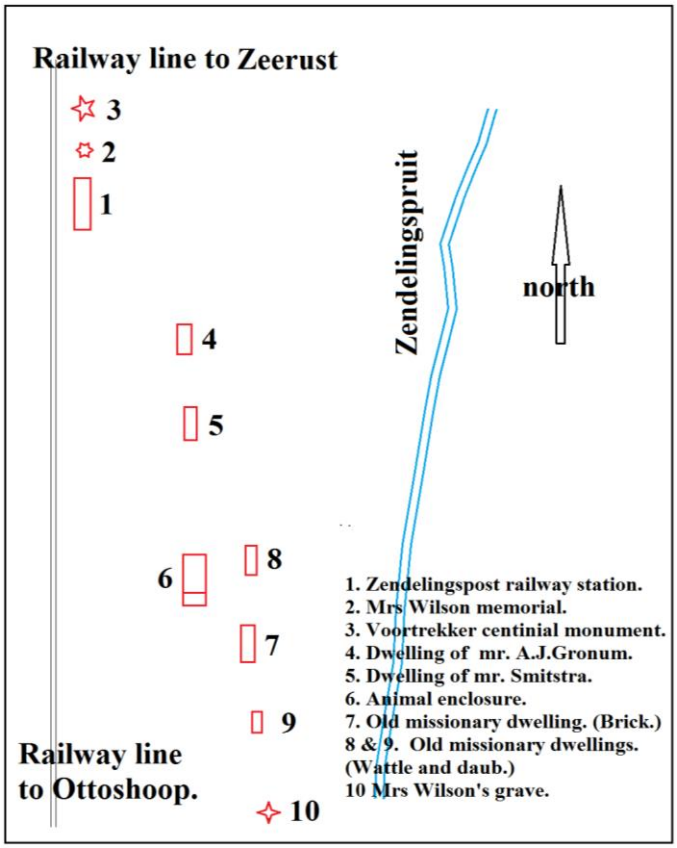
In June 1836, the families of the Venables and Wilsons with the newly born Martha Wilson returned to Mosega. With them was a retuné including Baba Buijs, three Ba-Tshwane people (servants?) as well as five ambassadors of Mzilikazi[34] on their way back from the Cape that they finally managed to reach after much effort of Mzilikazi to communicate with the Cape authorities.

Owing to the dampness of the clay floor recently installed in the proposed missionary dwelling the party at first accommodated themselves in the open and in the wagons. Eventually the inclement weather forced the Venable couple and Mrs Wilson with her infant to take shelter

[32] Referring to the vast numbers of slaves taken to America from Africa.
[33] One of the offspring of Coenraad De Buijs.
[34] One of these was again Mcumbate (Nombate) that next to Mzilikazi himself was one of the three most important leaders in the Matabele community.

in the dwelling on the 16th of June *1836.*[35] In July 1836, the Lindleys joined the Mosega community, by which time Dr Wilson had also arrived there. The group was now in place for the work that they had committed themselves to.

However, the previous musings of Moffat returned to haunt the future of the party. One by one, they fell sick to an unknown illness eventually resulting in the demise of Mrs Wilson on the 18th of September 1836. The end came suddenly on the early morning of the 17th of January 1837 when the Matabele was routed from Mosega by a Commando under the leadership of Gert Maritz, bent on vengeance that issued from the fight at Vegkop, south of the Vaal River between the Voortrekkers and Mzilikazi's army.



The American missionaries, most of them still not recovered from their collective ailment, was apparently requested to evacuate the Mosega mission premises by the trekker Commando. Soon after this the American group relocated to ThabaNchu, the mission station ran by reverends James Atchbell and Thomas Shepstone. From then on, the fortunes of these people are illusive. Eventually Lindley, after work as a schoolmaster and minister in Natal, was consecrated as a reverend for the Voortrekker community in Pietermaritzburg.[36] *(Rex 1971: 73-81.)* Although the events described above were technically the end of Mosega mission station as envisaged by Dr Philip, it was not yet the end for Mzilikazi. This first so-called punitive expedition in January

Figure 56. *The layout of Zendelingspost or old Mosega mission (Rex 1970: 50.)*

was not successful, as only some 107 mounted and armed burgers participated in the first attack after a gruelling passage from the Blesberg lager near ThabaNchu in less than two weeks on horseback. The punitive party managed to put a small portion of the Matabele on flight and only recovered a nominal number of the loot that was taken from them by Mzilikazi.

(The layout of Zendelingspost or old Mosega mission station was documented by the unofficial historian of the Marico district, C.F. Gronum that lived on the site for some time is shown in Figure 43.)

[35] At that stage Dr Wilson was on visit to Mzilikazi, Lindley on visit to Cape Town and his wife and daughter recuperating at Kuruman.

[36] Whether this clear positioning of alternative thought of Lindley was religiously inspired or rather to personal opinions needs some investigation.

In October and November of 1837 Commandants Andries Hendrik Potgieter and Piet Uys led as a second punitive expedition against Mzilikazi and the Matabele. This time though the gloves were off and 330 mounted and armed burgers participated in the attack. They advanced slowly, resting their mounts and themselves at Malmani after crossing the Vaal River at Schoonspruit. This was on the 2nd of November. The next day they only advanced as far as the modern day Zeerust and the next to the south side of Enselberg on the banks of the Roodesloot.[37] From here, the attack was launched and over a period of nine days the Commando systematically herded the warriors of Mzilikazi along the Marico from hill to hill, many of which still bear the name Silkaatskop today.

The last action was fought at Lotteringskop (Tweedepoort) on the 12th November and the now demoralised and disorganised men and women of Mzilikazi were driven past Derdepoort, never to return. From here, Mzilikazi migrated into the wilderness of Zimbabwe where he wrested a large chunk of land from the Shona people. He settled at Bulawayo where Moffat was to visit him in the search for Livingstone.

In a simple statement after the nine-day punitive expedition commandant A.H. Potgieter declared that all lands formally under the rule of Mzilikazi were seen as spoils of War and compensation for the large losses of livestock looted by the Matabele. Then he took possession of the land described as *...benoorde de Vaalrivier, langs Vaalrivier af tot aan Langberg, vandaar langs de Dorsland tot aan de Zoutpansberg en van daar tot aan Drakensberg in Sinkogella's...*[38]

On the 9th of December *1838* the Voortrekkers made a covenant with God that they will celebrate the day of their triumph over the Zulu every year as a holy day, should they be granted victory. On the 16th of December Commandant A.H. Pretorius led 464 men against Dingaan and his warriors near the Ncome River[39]. About 3500 of the 5000 Zulu warriors were killed, marking a major blow against Zulu dominance.

The two punitive expeditions against Mzilikazi and the Ncome battle against Dingaan in 1837 and 1838 led the Voortrekkers to the belief that the areas then known as Natal, the Orange Free State and the Transvaal as being their own to settle in, irrespective of some moral questions hanging over ownership of these lands, which only time will still resolve.

However, the above may be, there was a brief attempt by the L.M.S. to reinvigorate the Mosega station through the effort of the reverends Owen and Hewetson between *1839 and 1841*. Resistance from the Bahurutsi to return to a place that they now thought of as a place of ill omen, the attitude of the Dutch orientated religion of the Volksraad in Pietermaritzburg and even the support (or lack of it) of the L.M.S. itself resulted in the final abandonment of Mosega. This third group left Mosega on the 30th September 1841 for Kuruman and from there they departed finally on the 18th of March of the same year.

[37] The verbal description of the advance of the expedition can be followed on Jeppe's 1899 map sheets 4 and 1.

[38] …north of the Vaal River, along the Vaal River to the Langberg, from there along the thirst land (Botswana) up to the Zoutpansberg and from there to Sinkogella's…It is apparent that at this stage Potgieter still regarded the land of the Tshwana to the west, the Venda to the north and the Pedi to the east as sacrosanct.

[39] This river is known as Bloedrivier in Afrikaans and as Blood River in English, owing to it running thick with blood of the fallen warriors.

Addendum 6. Historical cameos from the greater region.

6.1. The first contact with people of the interior.

The Portuguese Bartolomeu Dias established the southern point of Africa – "The Cape of Storms" in 1488. By 1498 Vasco Da Gama had established the see-route to The Far East setting up valuable trade relations. But in this period the only contact with people of the interior was during limited contact during excursions for fresh water and firewood.

Over time the French, British and Dutch also realised the valuable trade that was on offer in the East and all followed the Cape sea-route to the east. Owing to ecological factors (topography, geology and wind) and strong superstitions regarding the interior, very little effort was made by the sailors to engage with local people over the next century.

One exception was Autshmao, also known as *"Herry die strandloper (beach walker)",* who was chief and interpreter of the Gorinhaikonas. In 1630 he was taken to Bantam by the English and returned to the Cape a year later. He had learned to speak Dutch and English, which made him very useful to his people, and the European settlers who were engaged in a trading relationship after the establishment of the refurbishment station under the Dutch VOIC. This settlement was to become Cape Town.

In 1652 Jan van Riebeeck, with three ships, effectively started the colonialization of Southern Africa. From his diaries we have clear indications that the region to the north was extensively occupied by a variety of peoples with a variety of cultures. These differences manifested mainly in the different preferences of utilising the sea or the interior.

However, the use of metals was known to them, and they were the owners of a variety of domesticated animals that included cattle and sheep. Most important though is that they were not farmers as such, but harvested from the veld what they needed.

At first interaction and trade between the Dutch and the Indigenous peoples were peaceful, but the systematic expansion of the settlement eventually led to friction over land ownership and grazing rights.

The diary of Van Riebeeck spanning 1652 to 16621 is an extensive journal that covers many subjects relating to the daily running of the settlement as well as the cultural groups associated with the Cape region

6.2. The disappearance of the 1808 exploration expedition led by Dr Andrew Cowan.

In 1808 one of the most expensive expeditions, with the most ambitious agenda, set out from Cape Town for the Portuguese Fort at Delagoa Bay in southern Mozambique. Under the leadership of Dr Andrew Cowan of the 83rd Regiment.

The expedition crossed the Orange River safely and, after a short sojourn at the Klaarwater mission station, set off for the Kuruman river where Malibongwe, the king of the baTlhaping, had his capital. Two previous expeditions from the Cape had visited the baTlhaping prior to this time but once past them the Cowan expedition, with approximately another 1000 kilometers between it and its destination, would be in what, from the colonial perspective, was virgin territory.

The expedition failed to arrive at Delagoa Bay and, barring a letter written on Christmas Eve and sent from the Molopo River near modern Mafikeng (Mahikeng), was not heard from again. In the two centuries since its disappearance, the fate of Cowan and his men has been the subject of on-going debate and speculation, which due to a lack of concrete evidence has been necessarily inconclusive. Recently, however, Cowan's journal of the first leg of his journey has been rediscovered in an archive in Northern Ireland, along with several letters written by him en route.

It has been turned into a readable book in 2014 by Hazel Crampton *The side of the sun and the moon. Andrew Cowan 1678 – 1808?*

6.3. The Cape Northern Frontier.

(The San © www.safrica.info. The Karoo © www.plantzafrica.com.)

In the late 17th and early 18th century the Dutch at the Cape Colony only had contact with the Khoikhoi and San peoples. The Dutch farmers moved further north to colonize more land to cultivate in order to meet the requirements of the service post set up by the Dutch East India Company (VOC) at the Cape of Good Hope.

Expansion of the Cape Colony was greatly influenced by the dry and infertile nature of its immediate interior. Farms could only be settled where there were springs to provide permanent water. The Karoo stretches towards the east of the Cape and could only be used as seasonal grazing for animals and expansion was forced towards the north and northwest. In the northeast the Dutch farmers met with serious resistance from the Khoikhoi and San, discontinued their bid for more land and moved back to locations closer to the coast. However, the sparse population of these two groups made it easier for the colonizers to expand.

In September 1795 the Cape was won by British forces and soon after the VOC had ceased to exist. Life at the Cape changed, but productivity remained low as a result of irregular rain, a small population, a lack of cheap labor and advanced agricultural technology. British annexation of the Cape continued intermittently from 1795 to 1854, whilst from 1818 to 1819 the British were involved in a second conflict, one of many with local peoples, with Xhosa forces for the territory east of the Great Fish River. This stopped the expansion of colonizers up the east coast, but by 1820 more settlers resulted in increasing desire for land and expansion. These British settlers had been sent to South Africa to alleviate unemployment and poverty in England and many of them had no prior experience of farming. Their arrival and settlement on contested land may have led to the development of later conflicts.

The concept of expanding the Colony's borders to the Orange River first came into being in 1809, but no action was taken until 1820. Farmers had, however, been settling outside the official borders of the colony from 1800 to 1820 and from 1822 the borders were redefined to accommodate this development. The northern border of the Cape Colony now extended to the Orange River and towards the east it stretched to the Stormberg Spruit.

Before 1820 John Campbell, from the London Missionary Society (LMS), travelled north of the Orange River and reported, very subjectively, that the whole area was a place of "strife and blood" and that Satan had spread wickedness into the hearts of the people, which resulted in the state of war and dissent in the area. Campbell was exposed to many different tribes in his travels and was told many varied accounts of the roles of each tribe and chief. During that period fierce competition reigned between various tribes for trade routes to Mozambique and he was often deliberately misinformed. British officials didn't put much stock in Campbell's reports and only took interest in the areas he visited after 1820.

In 1825 plagues of locusts and drought resulted in farmers in the Gariep River area being allowed to extend their grazing over the river as an emergency measure. Rainfall in 1826 allowed most of them to return their cattle, but another drought in 1828 and 1829 brought about the process of permanent settlement north of the Orange River. There was no intention of breaking with the Cape Colony and the farmers still paid their taxes.

6.4. John Campbell.

He attended the Royal High School and was at one time apprenticed to a goldsmith. Campbell helped found the *Magdalene Society*, a Religious Tract Society of Scotland in 1793, and the *Missionary Magazine* in Edinburgh in 1796. His consuming interest in Christian philanthropy led him to preach widely in neglected villages and hamlets, promote the establishing of numerous Sunday schools and found societies like the Magdalene asylum to help prostitutes in Edinburgh and Glasgow His opposition to the slave trade led to his involvement in the foundation of the Society for the Education of Africans.. He collaborated with James Alexander Haldane in bringing some 30-40 African children to be educated in England. Following the Haldane Revival Campbell became a *Congregational Church minister*.

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Figure 57. *Image of John Campbell as illustrated in the frontispiece of his book on his travels into the interior.* ***(Circa 1818.)***

He was minister at *Kingsland*, an independent chapel he had founded, from 1802. He was instrumental in founding the British and Foreign Bible Society and became a director of the London Missionary Society.

The LMS sent him to the Cape in June 1812 to inspect the mission stations there. He set off from Cape Town in February 1813, calling in at Bethelsdorp and Grahamstown, then the military headquarters. Heading north he visited Graaff-Reinet and Klaarwater and then travelled further north to Litakun, the kraal of the BaTlhaping Kgosi (chief) Mothibi. His return trip went via Klaarwater, Pella and the Kamiesberg, arriving in Cape Town at the end of October. He wrote an account of this trip as *"Travels in South Africa, undertaken at the request of the Missionary Society"* and it was published on his return to London in 1815. The town of Campbell, east of Griquatown, was named in his honor.

Campbell returned to the Cape in February 1819 in the company of John Philip. His orders were to inspect and improve the mission stations which had fallen into a neglected state. On this visit he instructed the missionary Robert Moffat to start a mission among the Bechuana tribe. Campbell once more ventured into the interior, leaving Cape Town in January 1820 and travelling as far north as Mosega in Barotseland, on which journey he also came across the large settlement of Khaditshwene near the Limpopo River.

He left for England in February 1821, publishing two further volumes covering his second journey. He subsequently delivered a series of lectures on his missionary work.

6.5. William John Burchell

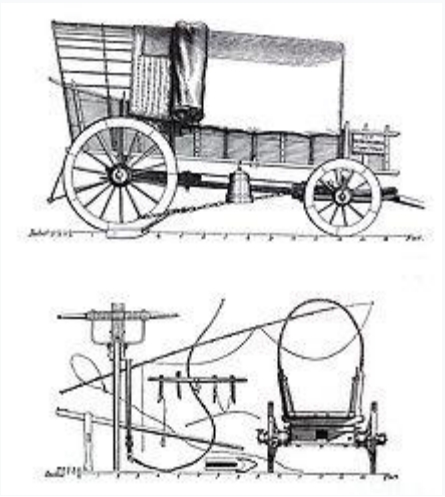


Figure 58. Left. *Portrait of W.J. Burchell.* ***(By John Russel -1800.)***
Right. *Wagon commissioned by Burchell for his expedition.* ***(Travels into the Interior. Vol I.)***

William John Burchell (23 July 1781 – 23 March 1863) was an English explorer, naturalist, traveler, artist, and author. His thousands of plant specimens, as well as field journals from his South African expedition, are held by Kew Gardens, and his insect collection by the Oxford University Museum. He was born in Fulham, London, the son of Matthew Burchell, botanist and owner of Fulham Nursery, and his wife. His father owned nine and a half acres of land adjacent to the gardens of Fulham Place. Burchell served a botanical apprenticeship at Kew and was elected F.L.S. *(Fellow of the Linnean Society)* in 1803. At about this time, he became enamored of Lucia Green of Fulham, but faced strong disapproval from his parents when he broached the idea of an engagement.

On 7 August 1805 Burchell at the age of 24 sailed for St Helena aboard the East Indiaman *Northumberland* intending to set up there as a merchant with a partner from London, William Balcombe (1779-1829). After a year of trading, Burchell did not want to continue and dissolved the partnership. Three months later he accepted a position as schoolmaster on the island and later as official botanist.

In 1810 he sailed to the Cape of Good Hope in South Africa on the recommendation of Governor General J.W. Jansen to explore and to add to his botanical collection. Burchell's intended wife had jilted him for the captain of the boat taking her to St. Helena to join him.

Landing at Table Bay on 26 November 1810, after stormy weather had prevented a landing for 13 days, Burchell set about planning an expedition into the interior. He left Cape Town in June 1811. He travelled in South Africa through to 1815, collecting over 50,000 specimens, and covering more than 7000 km, much over unexplored terrain.

He described his journey in Travels in the Interior of Southern Africa, a two-volume work appearing in 1822 and 1824. (It was reprinted in 1967 by C. Struik of Cape Town.) He is believed to have planned a third volume, since the second ends long before he completed his journey. On 25 August 1815 he sailed from Cape Town with 48 crates of specimens aboard the

vessel Kate, calling at St. Helena and reaching Fulham on 11 November 1815. Given his experience and knowledge of South Africa, in 1819 Burchell was closely questioned by a select committee of the British House of Commons about the suitability of the area for emigration. The 1820 Settlers went out from England a year later.

He spent time cataloguing and processing his specimens, and raising funds for his next expedition. Burchell travelled in Brazil between 1825 and 1830, again collecting a large number of specimens, including more than 20,000 insects. The journals covering his Brazil expedition are missing, as are his diaries relating to his later travels. His field note books, detailing his plant collections, are held in the collection of Kew Gardens. Historians have used them to reconstruct the latter part of his trip.

Burchell's extensive African collections included plants, animal skins, skeletons, insects, seeds, bulbs and fish. After his death, his plant specimens, drawings and manuscripts, both South African and Brazilian, were presented by his sister, Anna Burchell, to Kew Gardens and the insects to Oxford University Museum. He is known for the copious and accurate notes he made to accompany every collected specimen, detailing both habit and habitat, as well as the numerous drawings and paintings of landscapes, portraits, costumes, people, animals and plants.

Burchell died in Fulham in 1863, ending his own life by hanging himself in a small outhouse in his garden, after a non-fatal suicide attempt by shooting. He is buried near his home at All Saints Church, Fulham.

He is commemorated in the monotypic plant genus *Burchellia* R. BR, and numerous other species such as Burchell's zebra, Burchell's cougal, Burchell's sandgrouse, Burchell's courser and Burchell's army ant. A species of African lizard, *Pedioplanis burchelli*, is named in his honor.

Figure 59. ***Left.*** *Rocks in the Asbestos Mountains.* ***(Drawing by W.J Burchell.)***

Figure 60. ***Right.*** *Stoffel Speelman, a Khoekhoe collecting assistant of Burchell.* ***(Portrait of his assistant by W.J Burchell.)***

6.6. The Wars of Mzilikazi.

6.6.1. The first war with Dingaan.

As Robert Moffat wagons slipped over the southern horizon and disappeared after his first visit, Mzilikazi turned back towards *enKungwini* to face arguably the greatest series of challenges to the long-term survival of the amaNdebele that he had confronted thus far. The first of these was the long-awaited settling of scores with the Zulu that came soon afterwards as Mzilikazi had always feared that it would.

Two years earlier the short but shockingly violent reign of Shaka Zulu had been brought to a predictably bloody end by his assassination at the hands of his younger half-brother Dingaan, and other disaffected elements within a regime that had gone conspicuously awry. Towards the end of his life Shaka had succumbed to paranoia and neurosis which resulted in bouts of fratricidal bloodletting that eventually turned large sections of his following against him. The question of Mzilikazi's rebellion and exodus had stayed with him throughout his life, but curiously he remained attached to the memory of his friend and never ordered any punitive expeditions against him.

Upon his succession Dingaan proved to be less forgiving, and perhaps more importantly less able to resist calls from within the military command to at long last revenge the slight of Mzilikazi's theft of royal cattle and his refusal to bow to Zulu rule. The nation at that time was enjoying a period of peace, which did not sit well with the military, and it was agreed soon after Shaka's death that a campaign would be launched against the amaNdebele to finally bring account to the matter of the Khumalo rebellion.

News of this did not reach Mzilikazi until he had dispatched his own army north to the central plateau to raid among the *Mashona*, or *itShonalanga* people of present-day Zimbabwe. This left the home territory bereft of competent defense, a situation which was aggravated by the defection of many individuals of Zulu lineage who made a calculated decision to rejoin their kinsmen now bearing down on the Marico Valley from the east. This also armed the Zulu commanders with detailed information regarding the formation and strength of amaNdebele defenses.

Gathering together what manpower he could among the home guard regiments Mzilikazi boldly set off and met the incoming Zulu force in a full-frontal engagement that, although it temporarily halted the momentum of the invasion, and deflected a complete annihilation, was not enough to avoid a nominal defeat. The weak amaNdebele force presently took refuge in the thickly wooded hills of the Magaliesberg from where it launched harassing lightning raids on the Zulu regiments still swarming across the country, razing settlements and plundering cattle.

In the end the Zulu army left with large amounts of booty and after much destruction, but with no absolute victory to report. The amaNdebele were wounded and reduced but by no means defeated. And as the dust slowly began to settle, and as the people emerged from hiding to count the cost, it was generally hoped that this would be the end of the simmering feud with the Zulu. Thereafter life slowly returned to normal in the Marico Valley, Mzilikazi moved his capital further north to a site called *emHlahlandlela* after which lost cattle and other livestock were replenished in the usual way. This certainly might have been the end of the Zulu affair where it not for the mood of Mzilikazi's other enemies, and there were many of these, who felt that the only time to safely kick a dog like him was when he was down.

The dominions of the amaNdebele at that time consisted more or less of the area contained between the Vaal and upper Limpopo Rivers. Although amaNdebele patrols ranged over great distances the main centers of settled population tended to be narrowly focused around the confluence of the Marico and Crocodile Rivers in the region of what is today, Rustenburg. For those living along the fringes of this territory, and in particular those that had not yet felt the full weight of amaNdebele raids, life existed in a constant state of insecurity. Any effort made to accumulate stock, property and food surpluses would be simply inviting attack from the amaNdebele.

6.6.2. The wars with the various groups of Griqua, Koranna and Bergenaars.

This sense of the amaNdebele being a scourge on the landscape was also not limited to just the black tribes of the interior. The militancy and territorial aggression of the amaNdebele was also a source of fear and frustration to the various *Griqua*, *Koranna* and *Bergenaars* groups that had in the past been accustomed to a relatively free-range north of the Vaal River. These were often supported with arms and money by powerful commercial interests as far away as the Cape, meaning that many diverse powers developed an interest in plotting the demise of the amaNdebele. And since no single force or entity was capable of achieving this alone it seemed inevitable at some point that a combination of interests would merge to challenge the amaNdebele grip of the northern interior.

This happened in the winter of 1831 when an alliance was forged between a medley of different interior groups including several Griqua and Koranna clans alongside members of the Baralong, the Bataung and other notable Bechuana tribes. It was an imperfect alliance of not altogether unified interests, but under the command of local Griqua Captain Barend Barends it stood a fair chance of success if a cohesive discipline could be maintained and a combined sense of purpose achieved. The matter was put to the test soon afterwards when word reached *Barend Barends at his headquarters of Boetsap* that Mzilikazi had again deployed his crack troops north to raid in Bechuanaland, leaving the amaNdebele heartland defended by little more than a light force of older veterans and un-blooded recruits.

In the first wave of attacks the combined use of armed Griqua horsemen supported by sweeping native infantry proved to be devastating, and within a short time much of the southern amaNdebele hinterland had been laid to waste. Predictably, perhaps, the attack degenerated into a repeat of earlier Griqua incursions with discipline collapsing at the first sight of the vast amaNdebele herds. A rush for plunder took presence over prudence or caution while unity of purpose became every man for himself.

On receiving news of the advance, and with his principal units unavailable, Mzilikazi opted for a rare strategy of discretion. He chose not to expose what limited manpower he had to a direct confrontation, but instead ordered a northwards withdrawal at the cost once again of abandoning the wealth of his nation to enemy plunder. However, reconnaissance groups were position to observe the progress of enemy units now absorbed almost entirely with the business of mustering captured amaNdebele cattle and moving them south across the Vaal. By the third day of the campaign most of the invaders largely abandoned any of the normal precautions of war. A conical hill in the locality was reached and there a large body of Griquas bivouacked and settled down to feast on stolen amaNdebele cattle.

In the mean-while for three days a large amaNdebele shadowing force had been silently following the raiders, and when it seemed that their guard had been completely relaxed the unit moved stealthily forward, and in the half-light of dawn announced an attack with a sudden chorus of hissing, the clattering of spears on shields and the drumbeat of bare feet on

the dusty earth. A few short minutes later the sun rose on a scene of carnage. Four hundred members of the Griqua commando lay dead, alongside scores of Koranna and Motswana fighters, and many others caught in the general mêlée. Those few that survived abandoned their comrades and their booty and fled south to warn their commanders billeted at the rear. Mzilikazi is said to have visited the scene of the battle himself, and under the conical hill that later became known as *Moord-Kop*, or *Murder Hill*, he walked among the dead under a cloud of thoughtful melancholy. The moment was sweet, of course, but Mzilikazi was engaged in a larger picture, and once again the signs were ominous that new and powerfully armed forces were gathering, forces that could not be forever ignored.

Although the failed invasion served as a salutary lesson to Mzilikazi, in the short term it did nothing to halt, or even slacken the frenetic pace of assaults and raids against neighboring tribes. One after another intact communities on the fringes of amaNdebele territory were attacked, their cohesion smashed and their wealth and livelihood, as well as their young and able, stolen. Those left behind were slaughtered or left to die in the smoldering ruins of once productive landscapes. The first to fall in the renewed campaign were the Bangwaketsi, after which followed the Bakgatla, until by the end of 1831 Mzilikazi could claim most Bechuanaland as a constituent sector of his growing sphere of influence. All that remained was the fertile and productive country of the Marico Valley, home of the Bahurutsi people, which Mzilikazi vowed would be his before the end of the next raiding season.

His plans were however interrupted by the arrival at *Mosega*, the capital of the Bahurutsi leader Mokgatla, of a *group of French missionaries intending to establish a mission station among the Bechuana tribes.* These men were loosely acquainted with Robert Moffat which caused Mzilikazi to pause in what otherwise would have been an immediate expulsion ahead of a large-scale military campaign. Instead, the missionaries were summoned to Mzilikazi's royal kraal, although only one, *Jean Pierre Pellissier*, actually made the journey.

Mzilikazi had for the first time directly requested a Christian mission to his territory, which of course delighted Pellissier, although as the two toured the surrounding countryside under an aura of mutual friendship the intuitive Frenchman began to suspect that it was less the spiritual renewal that Mzilikazi sought than access to gunpowder and shot.

6.6.3. The second war with Dingaan.

It is doubtful that Mzilikazi ever had any serious intention of allowing Christian missionaries access to his people, and so why he went to the trouble of inviting Pellissier to his court remains a mystery. However, the fact that he did, delayed for several months his plans to attack the Bahurutsi which in the event was fortunate. Had he deployed his premier regiments as he had intended to do his country would once again have lain almost undefended against a second Zulu attack, news of which reached him almost at the moment he was poised to order his army south.

This time the Zulu regiments were buoyed and confident and ready to finish the job, while Mzilikazi, now with the full force of his army, met the news with confidence. In due course the two most powerful armies in the region met on the field of battle in a struggle as epic as it was inconclusive. When the two sides broke both claimed victory, although neither had prevailed, and once again a limping Zulu forced turned and wended its way back east while Mzilikazi celebrated the victory of survival.

Immediately afterwards the delayed offensive against the Bahurutsi went ahead, which was achieved without bloodshed when the impis discovered that the land had been prudently

abandoned ahead of the invasion. Mzilikazi then led the amaNdebele tribe from the Magaliesberg into the fair and newly acquired territory of the Marico, and there they temporarily settled.

By the beginning of 1834 the amaNdebele nation had achieved significant size and a wide scope of political control that extended nominally between the Vaal and Limpopo rivers, with the new military and administrative core now situated at the old Bahurutsi capital of Mosega. Effective occupation and settlement of the Marico Valley went ahead with by now customary discipline and organization, and in due course structures of defense were in place with the new southern fortified boundary becoming the Vaal River. Several garrison settlements with large military cantonments were established in various key locations with Mzilikazi's own settlement established at *eGabeni* situated along the lower reaches of the Marico River somewhat south of the present-day town of Lobatse.

With new settlements established, and life returning to normal, raiding recommenced with this time particular emphasis placed on securing the southern boundary of the Vaal. Mzilikazi stressed to his commanders before deploying them into the field that any trespass of any kind into amaNdebele territory was to be met with death without question. There would be no future surprise attacks, and no invasions. The Vaal River would define the soft underbelly of the amaNdebele heartland and the impis would comprehensively patrol and protect it.

So it was, and the first unfortunates to test the resolve of the patrolling impis was a party of Griqua hunters and their families camped on the north banks of the Vaal who were set upon without warning and wiped out with the exception of two children who were returned to *eGabeni*. A little later Andrew Geddes Bain, the Grahamstown merchant, then leading a trip to the Molopo River in the company of a retinue of colored servants was unexpectedly borne down upon by an enraged force of amaNdebele and was forced to flee on horseback, fighting a fierce rearguard action, and at the loss of all his wagons, livestock, merchandise and provisions, which were also collected and transported north to *eGabeni*.

At this time also Robert Moffat chanced to visit Mzilikazi for the second time with the objective of securing safe passage for a party of geographic explorers from the *Association for the Exploration of Central Africa*. For an opportunity to receive a visit from the one man, white or black, who Mzilikazi regarded as a friend, he lifted the ban on travel, and in due course the Moffat party arrived at *eGabeni.*

Five years after their first meeting Moffat was struck by the changes that had taken place, not only in the growth and reach of amaNdebele power, but also in the physical bearing and countenance of Mzilikazi himself. The king had withdrawn himself from active service and so had gained weight and lost much of his earlier condition. He was now 45-years old, and unlike a missionary whose pursuits could be deemed spiritual and renewing, Mzilikazi was slipping past his prime. For whatever reason it might have been so Moffat seemed this time to find Mzilikazi even more lorn and desperate, perhaps even infatuated, a fact that others in the exploration party also seemed to notice.

As the exploration party continued north under the protection of Mzilikazi Moffat was constrained to linger on the outskirts of the royal kraal for much longer than he would have preferred. Uncertain precisely what to make of Mzilikazi's slavish devotion, and his at times almost sensual longing, Moffat never relented in his own attitude of disapproval and criticism, which in a way just seemed to feed Mzilikazi's childish yearnings. The delays irritated the

missionary, and the visit swung between long bouts of fraternal communication and churlish bickering over Moffatts desire to leave and Mzilikazi's refusal to allow him.

However, in due course Moffat did succeed in bringing the visit to an end, and a milestone in the lives of both men was passed. Only three periods of direct contact would occur between the two, all spanning pivotal years in the life of the region, of the amaNdebele and Mzilikazi himself, and all three moments of profound diplomatic importance in the process of accommodation that would in due course see the ultimate disempowerment of black and the establishment of white overlordship and governance.

6.6.4. The war with the settlers.

In the mean-while wider events underway on the continent would continue to limit the amount of space and time remaining in history for men like Mzilikazi to build and develop their political existence. Global European expansion worldwide was entering an accelerated phase at the end of the great Age of Exploration. A complex chain of events had been set in motion in Europe as the Old-World powers sought wider global influence, a processes that in one way or another would result in the comprehensive dispossession of indigenous people worldwide, but in particular the black man of Africa.

South Africa was among the first African territories to experience the arrival of large numbers of permanent settlers from Europe. The temperate climate of the sub-continent had proved viable for European survival while the global geo-politics of the time rendered the Cape a vital possession for any power wishing to dominate the East India sea trade. By the dawn of the 19th century Britain was emerging as the principal global power, and it was inevitable that as Dutch global influence began to decline that the British would eventually gain possession of the Cape. Such was the nature of established Dutch settlement in the Cape hinterland at that time that any suggestion of British dominance, and the weight of British administrative intrusion, proved to be too great a burden to bear.

By the 1830s an outward movement from the Cape of disgruntled Boer farmers and landowners had begun that in due course would become one of the greatest organized migrations in history. These intrepid souls, known as *Trekboers*, or *Voortrekkers*, gradually broke loose from British dominion, crossed the Orange River, and began to penetrate northwards with a view to opening up new territory for occupation free of any taint of British control. This movement became known as the *Great Trek*.

Meanwhile, and closer to home, Mzilikazi received a courtesy call from the *Association for the Exploration of Central Africa* as it made its way south on its return journey. Having in the meanwhile spent a great deal of time brooding on the menace of armed incursions crossing the Vaal River he had for the first time in his reign decided upon a strategy of treaty and diplomacy. He therefore requested that his visitors expedite the safe passage south of an amaNdebele embassy that would present a request for peace and goodwill to the authorities in the Cape. This was agreed to and done, and a few weeks later a meeting was held between Mzilikazi's regent and chief counsellor uMncumbata and the British Governor at the Cape Sir Benjamin D'Urban. The result was a treaty of peace and co-operation that was agreed to and signed in March of 1836. This was of course merely a symbolic gesture on behalf of His Majesty rather than any diplomatic nuptial of substance, but it is interesting to note that no sooner was the ink of uMncumbata's mark dry on the document than the vanguard of the *Great Trek* was reaching the symbolic barrier of the Vaal River.

The first group to cross and proceed north journeyed under the leadership of Louis Trichardt. This was an ill-fated expedition that slipped safely through amaNdebele territory only to disappear altogether in the fever-ridden country of Portuguese East Africa. Following behind the Trichardt Trek came another party under the leadership of a shrewder and more resolute leader by the name of Andries Hendrik Potgieter. Potgieter paused at the threshold of the Vaal River and peered across the frontier with interest. He did not immediately order a crossing but instead broke up the trek into its individual family groups and settled them into camps in a series of interlinked but scattered locations. He then selected a reconnaissance party that tentatively crossed the Vaal into amaNdebele territory and began a cautious exploration.

Behind followed a more robust hunting party under the leadership of a certain Stephanus Erasmus. It was this group that attracted immediate attention from the patrolling amaNdebele thanks to its hunting activities. Returning to his wagons one morning Erasmus was shocked to see a group of some 600 amaNdebele fighters engaged in the slaughter of his colored retinue. Erasmus spun around, spurred his horse, and with his fellow hunters fled south to raise the alarm.

With the amaNdebele patrol in hot pursuit Erasmus and the survivors of his party barely reached the temporary settlements of the sojourning trekkers in time to convey the stark but urgent warning. Most managed a hasty encirclement of their wagons before the limited amaNdebele assault force descended. The attack was successfully beaten off although one unfortunate family group was taken unawares and annihilated, with the theft once again of two young children that were neither seen nor heard of again.

This was a pivotal moment in the fortunes of the amaNdebele. When Andries Potgieter returned to the scene, and was confronted by both the victory and the tragedy, his natural desire for revenge was inflamed by his realization that the fair country he and his men had successfully scouted would never be theirs until the military dominance of Mzilikazi and his warrior people was broken. Potgieter was one of the great and controversial leaders of a great and controversial enterprise. He was a bold and decisive man who led a people of legendary courage and resolution. These were men and women driven by two powerful forces: a desire for independence and a sense of racial and religious superiority and entitlement. They were confident in their abilities, and confident of the providence that had brought them to the threshold of a brave new world. Consequently, the decision to plunge forward and seize the country that lay ahead was made on bended knees, and with eyes cast to heaven, and afterwards undertaken with the solemn and unimpeachable sanction of God.

The scattered parties were re-mustered into a cohesive force and their wagons encircled in a protective laager near a hill later to be named Vegkop. Ammunition was stockpiled, powder decanted and as much as possible the laager fortified. Thereafter the redoubtable Boer simply waited for the inevitable arrival of the amaNdebele, and for this they did not have long to wait. On the afternoon of 15 October pickets rushed into camp warning of the advance of a large body of amaNdebele. Indeed, it was not very long before a force of some 6 000 crack troops came into view after which a selection of Boer horsemen solemnly left the encirclement and made their way forward to engage.

The story of Vegkop is one of the epics of both white and black South African history. Although quiet confidence characterized both sides, the spectacle of a laagered fortification brimming with the feared sight of gun barrels, and for the Boer the sight of a distant line of savage foot soldiers, schooled in storm force and genocide, and themselves in a situation of profound

isolation, must have stirred the bowels in a manner that even Christian fortitude could hardly have relieved.

In the nervous silence of the moment, with a soft wind blowing over the veld, the vast assembly of amaNdebele fighters dropped to their haunches and waited in silence. The Boer horsemen trotted forward, and a brief and vastly unequal standoff ensured, before in a moment the amaNdebele were on their feet, a drum roll of spears and shields echoed with a virile challenge, and with a roar and a hiss the phalanx of warriors surged forward.

The Boer horsemen fired in an even fusillade, fell back, reloaded, and fired again, eventually arriving back at the laager which opened to receive them as thirty paces behind the first hissing wave of amaNdebele smashed against the defenses. The battle then raged fierce. A combined force of amaNdebele pride and ferocity and Boer faith and determination drove the two sides together with chilling determination. Wave upon wave of warriors mounted the bodies of the dead and dying and tore at the wagons, while cool and controlled firing and reloading kept up a steady barrage of deadly fire. After the first few frenetic minutes the amaNdebele flinched and broke, and then retreated beyond range leaving several hundred black dead and dying heaped against the walls of the laager.

A second, a short while later, attack fared no better, and eventually discretion proved the better part of valour, and with the consolation of several hundred head of cattle the amaNdebele detachment turned and made for home. For the Boer riflemen who disengaged themselves from their firing positions and watched the exodus of the enemy and their precious herds, victory was also inconclusive, but their very survival had been an achievement, and if their livelihood had been stolen and was being driven away at the head of the amaNdebele army, this simply rendered it more imperative that an expeditionary force be assembled to the take the fight to the amaNdebele, and take back what was theirs, and far more besides.

In the aftermath of Vegkop Boer strength was consolidated under the combined leadership of Hendrik Potgieter and newcomer Gerrit Maritz. Throughout November and December of 1836, the two men labored to assemble a force sufficient to mount an attack, and if possible depose the amaNdebele from north of the Vaal River. By early January 1837 the task had been completed, and a large and heterogeneous force of *Boer, Griqua and allied black tribesmen* crossed the Vaal and made its way towards the largest of the amaNdebele military cantonments.

A dawn attack was launched, which was followed by a series of running battles that culminated in a classic formation attack by a large amaNdebele force that was reasonably easily broken and repelled by the mobile tactics of mounted riflemen. Thereafter the main bulk of the amaNdebele force was driven back and retreated north in good order, but at the loss of a large amount of territory and much livestock. Wary of overstretching the resources of his invasion force Potgieter declined to press home his victory, but retreated back across the Vaal with minimal casualties and a large haul of booty.

In the mean-while the clear defeat of this once invincible force was celebrated far and wide, not least among the Zulu. Within a few months of the episode a second strong Zulu force appeared on the horizon and bore down on the wounded amaNdebele nation with profound malice. For the third time in a decade these kindred armies met in a clash of arms that ended, despite the relatively weakened force of the amaNdebele, with yet another stalemate. The Zulu returned to the east and the amaNdebele to the northwest, both severely bloodied but

neither beaten. It was clear that in this contest at least there was nothing to choose between the two great armies.

Meanwhile, in a series of arguments and disagreements, the briefly united Boer revealed somewhat the factionalism that defined their internal dynamic. Potgieter and Maritz argued and parted company, and Potgieter joined forces with a newcomer from the south by the name of Pieter Uys, and launched a second series of attacks across the Vaal. This third assault in almost as many months followed a similar pattern to the third, and again the amaNdebele were routed at the loss of hundreds, if not thousands of men, and huge quantities of livestock. Boer commandos reached *eGabeni* where a desperate strategy by the amaNdebele to attack behind a stampeding herd of cattle was thwarted by the Boers, and again the amaNdebele were put to flight.

This time there would be no reclaiming ground, no regrouping and counter attack. Soon the vast majority of men, women and children of the amaNdebele were fleeing north through passes in the Dwarsberg Ridge, abandoning their brief tenure of the Transvaal territory to the incoming Boer, and resuming once again the rigors of flight and exodus into the deep unknown.

Addendum 7. A few images from the 1800's as occupation milieu.

All of these are from the Smith Expedition 1836.

Figure 61**. Camping at the great Tswaing. May 1838.* ***(Lye pp207.)

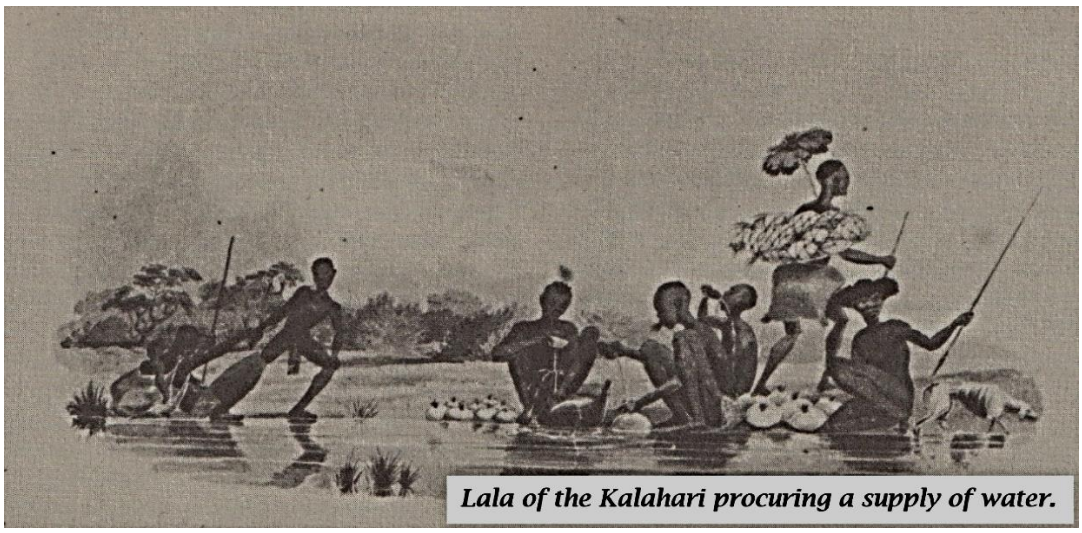


***Figure 62.** Collecting water into ostrich egg shells by the Lala at a pan deep in the desert on the way to the Transvaal.*

Figure 63. (Lye, pp45.)

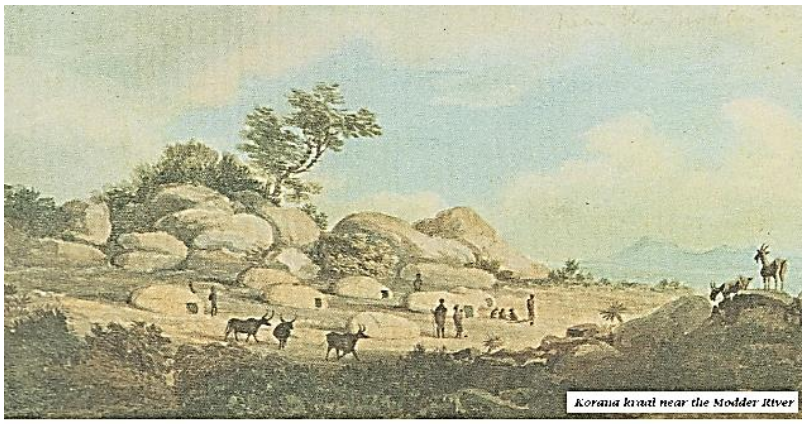


***Figure 64.** Koranna kraal near the Modder River. (Lye, pp52.)*

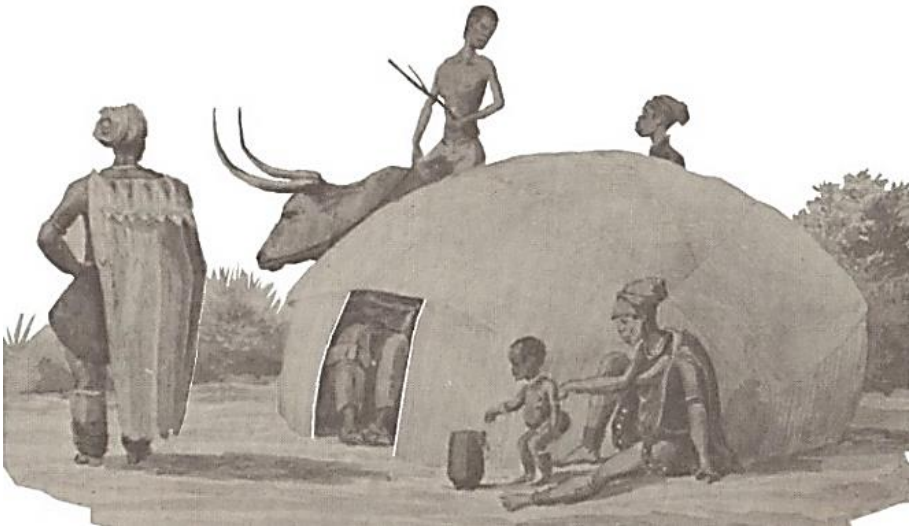


Figure 65. *Griqua family at home.* ***(Lye, pp 33.)***

Figure 66. *Typical. Koranna travellers.* ***(Lye, 58.)***

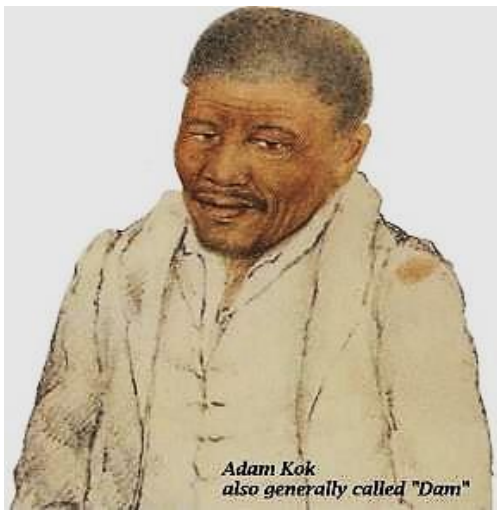


Figure 67. *Fortunately, the Smith Expedition visited most communities living the Kuruman region and captured the names and images of most of the leaders. Also, their lifestyles and places of residence was captured****. (Lye, pp37 and 49.)***

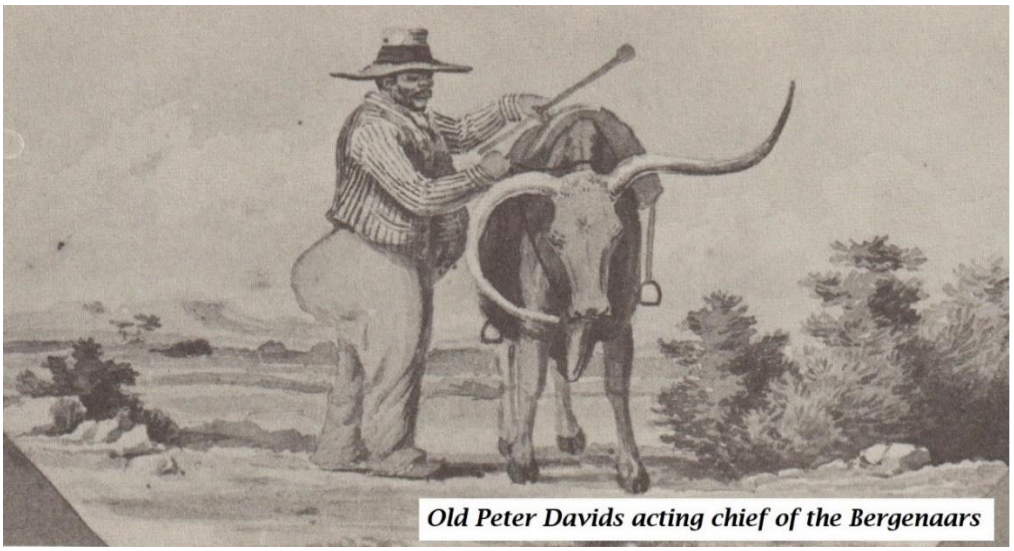


Figure 68. *Old Pieter Davids, acting chief of the Bergenaars.* ***(Lye, pp83.)***

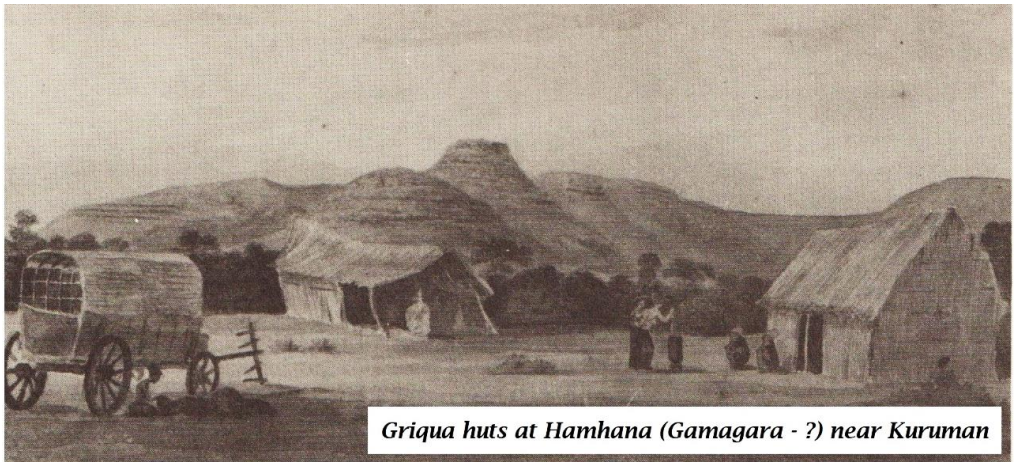


Figure 69. *The nearest image possible from the early 1800's of the historic occupation and environment on the Gamagara as recorded by the Smith Expedition.* ***(Lye, pp173.)***

Figure 70. *Above is an illustration of the redoubt of the Griqua leader Adam Kok. This is one of the first examples of the use of a fortified Church complex (see bell tower) in the interior of South Africa.* ***(Oberholzer, 1972: 172).***[40]

[40] ***The location of this defensive structure is unknown to the author but it should have been in the vicinity of Griekwa town.***

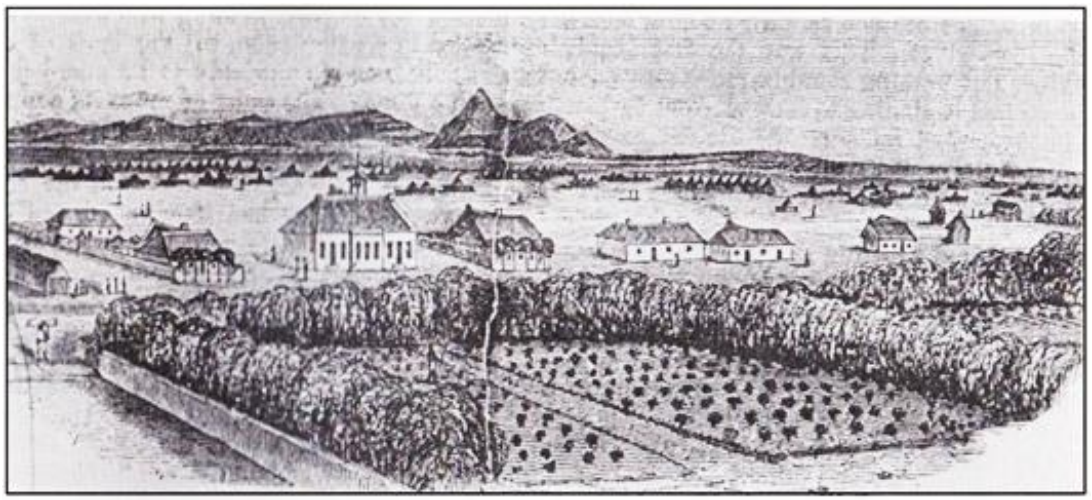


Figure 71. *General view of the Kuruman mission showing context, European buildings and indigenous peoples dotted around.* ***(Lye, 163.)***

Figure 72. *The reverends Prosper Lemue, Samuel Rolland and Jean Pierre Pellissier that established Mosega and was evacuated by Mzilikazi for their own safety.* ***(Rex 1971: 16- 20.)***

Figure 73. *Above in normal order are Reverend Daniel Lindley* ***(Rex 1971: 103.),*** *Dr. John Philip* ***(Rex 1971: 38)*** *and Mrs. Wilson*[41] ***(Rex 1971: 58.)***

[41] Mrs Wilson was the first European Woman to expire in the Transvaal, not from indigenous violence, but to an environment that was not conducive for such women at that time.

Figure 74. *The classical meeting between Smith, Mzilikazi and Moffat in 1836, two years prior to the punitive Commando raid of Potgieter.* ***(Lye, pp 227.)***

FEBRUARY 1662

'India and do not forget the signals, for the ships can be expected at any moment, 'and they rely upon the signals. So be alert.

'We commend you to God and send you our greetings.

'In the fort of Good Hope, 16 February 1662.

'Your sincere friend,
(Signed) 'Jan van Riebeeck.'

To-day the following resolution was taken in connection with the explorers who have just returned:

'Thursday, 16 February 1662[1].

'The sergeant, Pieter Everaerts, has on this occasion travelled considerably further 'into the interior than the previous expeditions. Although he made every effort, 'he could not reach the Namaquas, who were discovered last year. These people 'had moved far away from this side of the Oliphants River across a great stretch 'of dry, brackish and sandy country, over which it was impossible to travel now 'in the dry season, because of the lack of fresh water. The Namaquas had nevertheless 'promised to come to a place about 60 miles from here and meet our people, but 'we shall have to avail ourselves of this opportunity at a later date.

'To keep the volunteers eager for such an enterprise it has therefore been decided, 'in spite of everything, to meet the promises made them when they left on the 'expedition. The leader, the said sergeant, shall therefore be given double wages 'for the time spent on the expedition, and the others shall be given double wages 'for the number of days on which they travelled in excess of the time for which 'they were provided with food. As they could be given provisions for no more 'than 1⅔ months and their expedition lasted 3 months, the excess period works out 'at 1⅓ months. It has been agreed to pay them this bonus of 1⅓ months' wages in 'cash and also to pay them in cash for their usual brandy ration which has accumu-'lated to their credit, calculated according to the price of brandy as sold at the 'Company's stores, lest there be too much dissipation, etc.

'Thus done and resolved in the fort of Good Hope on the above date.

(Signed) 'Jan van Riebeeck,
'Roeloff de Man,
'Abraham Gabbema,
'Hendrick Lacus (Secretary).'

17th and 18th New moon. Still fine, lovely weather. Yesterday we bartered from the Saldanhars another 6 head of cattle and 4 sheep in poor condition.

Towards evening the S.S.E. wind began to blow very strongly.

Sunday 19th The wind continued in the morning with unabated force.

1. C. 1: Res., C. of P., 1651—1663, p. 681. C.A.

476

Figure 75. *A Page from the diary of Jan Van Riebeeck recording one of several expeditions the Dutch sent out northwards to contact the People living to the Northeast coast.* ***(Thom, pp 476.)***

Addendum 8. Ecological milieu including Geology and Vegetation.

8.1. Geology.[42]
8.1.1. General.

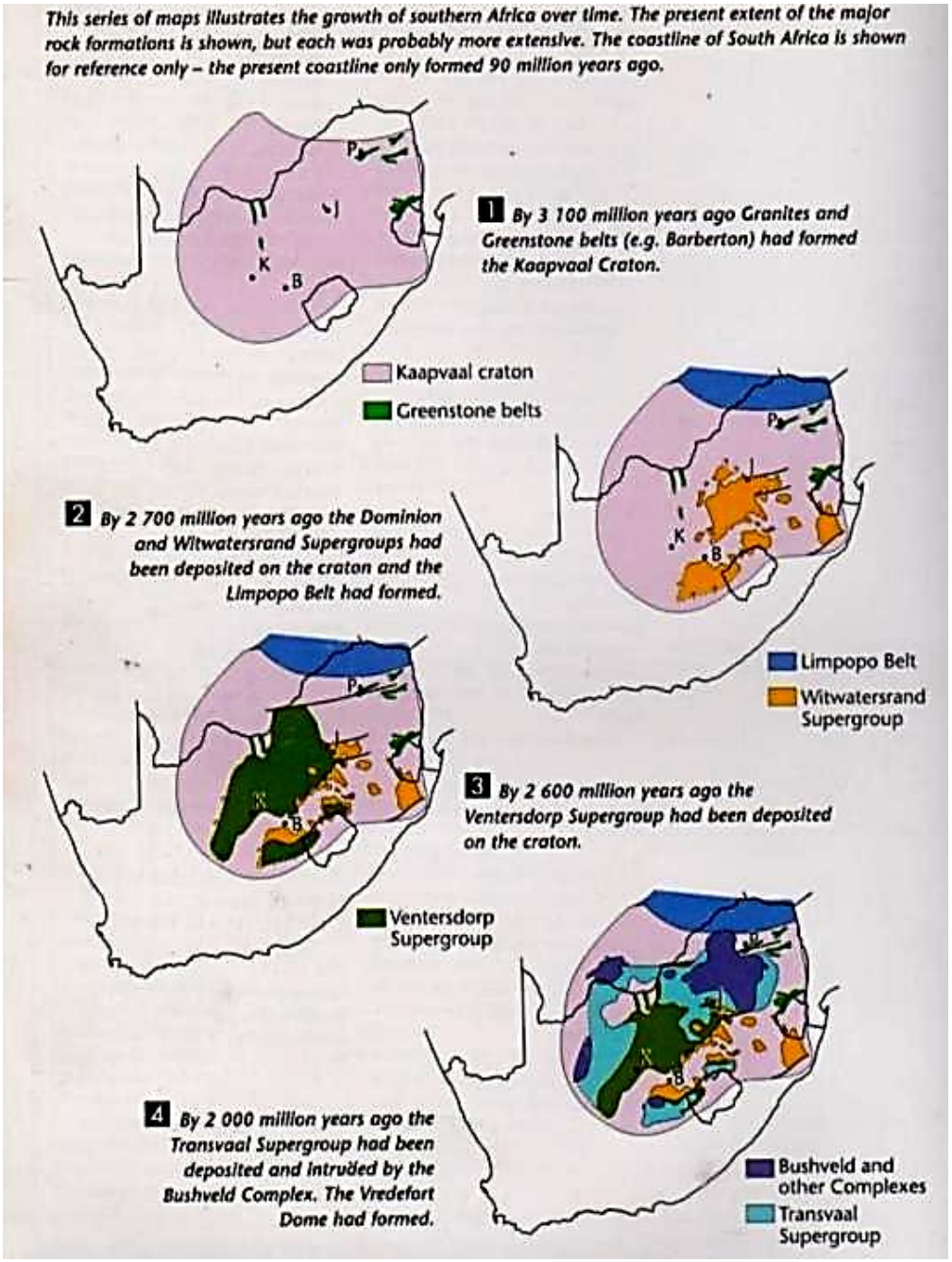


Figure 76. (McCarthy& Rubidge: 334.)

Above is illustrated the formation of the South African geological substructure between 3100 million years ago and 2000 million years ago. In our present study area, the Kaapvaal Craton had formed and the Transvaal Supergroup had been deposited. The Bushveld Complex had appeared and the Vredefort meteorite impact had occurred. K in the figure marks Kimberly, adjacent to the study area.

[42] ***See McCarthy & Rubidge 2005 and Haughton 1940 for full description.***

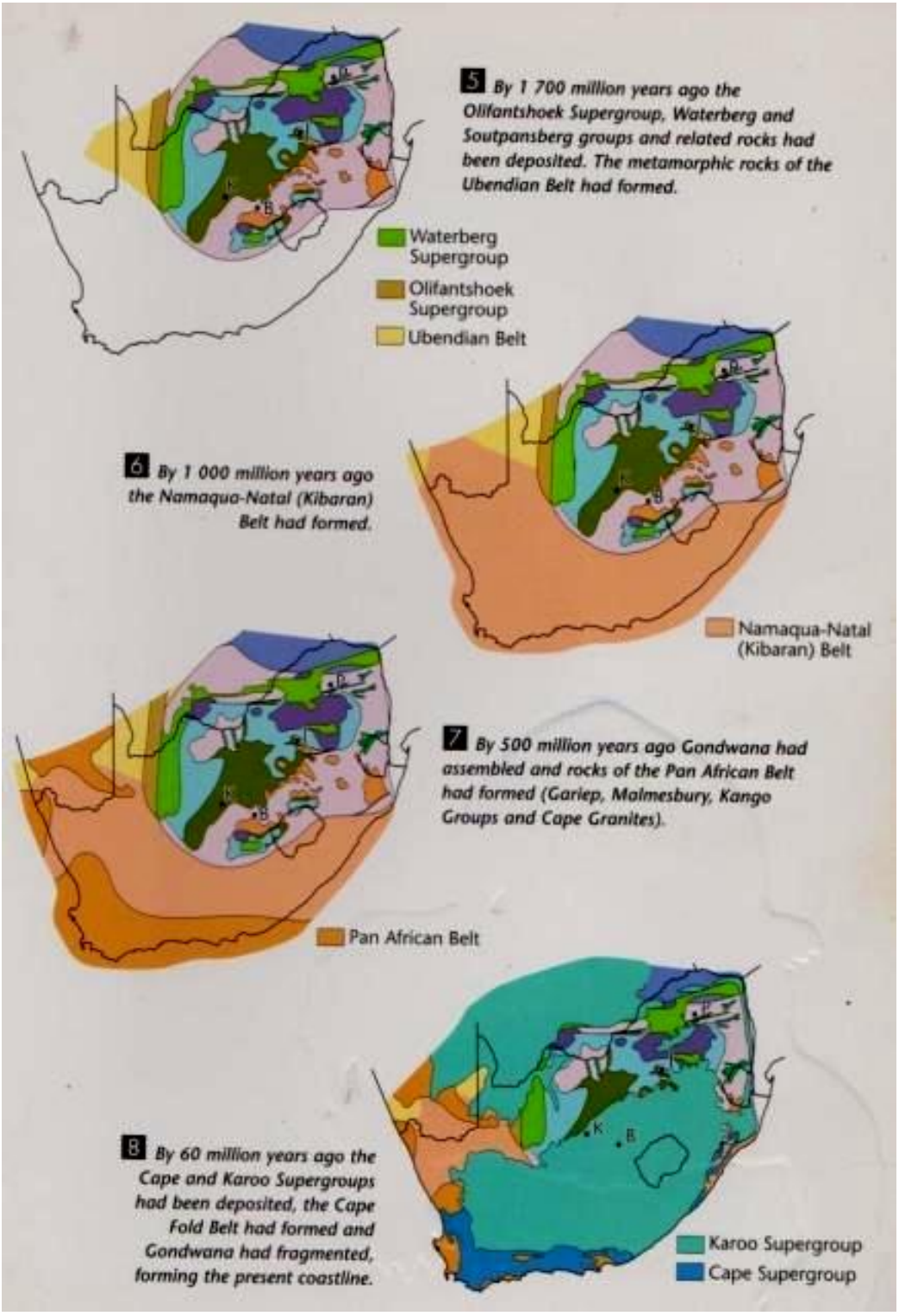


Figure 77. (McCarthy& Rubidge: 335.)

Above is illustrated the formation of the South African geological substructure between 2000 million years ago and 60 million years ago. As can be seen above it is only the Karoo Supergroup that had `any further significant impact on the study area. K, in the illustrations, marks Kimberly.

8.1.2. Sishen specific.

The Sishen mine is located approximately 65km southwest of Kuruman in the Northern Cape Province, a few kilometers away from the town of Kathu. This town accommodates most workers on the mine and serves as a basic civic supply and economic support center.

Mining at Sishen is carried out as part of Anglo American's Kumba Iron Ore operation. The mine accounts for the majority of Kumba's iron ore production. Kumba Iron Ore holds a 76.3% interest in Sishen Iron Ore Company Proprietary Limited (SIOC), which owns a 100% stake in the Sishen mine. The remaining interest is held by black economic empowerment (BEE) shareholders, including Exxaro Resources and SIOC Community Development Trust. Anglo South Africa owns a 69.7% interest in Kumba Iron Ore. The Kolomela Iron Ore Mine is another operation of Kumba Iron Ore in Northern Cape.

The mining operation at Sishen dates back to 1953. The first ore from the mine was exported in 1976. More than 900 million tons (Mt) of iron ore has been produced during 60 years of the mine's operation. The life of Sishen mine is estimated to be 13 years (??) Expansion projects such as Sishen Lower Grade projects, SEP1B and the Sishen DMS concentrate project are in consideration to extend the life of the mine.

The Sishen mine extracts the lump ore from a large *haematite ore body* hosted by a *Lake Superior-type* banded iron formation (BIF) called Kuruman Formation of the Asbestos Hills Subgroup. The lump-to-fine ratio of Sishen in 2019 was 71:29. The ore body measures approximately 14km-long, 3.2km-wide and 400m-deep.

The medium and lower grade iron ore at Sishen is found in the Gamagara Formation and occurs deeply towards the south of the higher-grade ore deposit.

The proven and probable ore reserves at the mine were estimated to be 519.4Mt, including 507.1Mt from open-pit and 12.2Mt from run-of-mine buffer stockpiles), as of 31 December 2019. The mine employed 4,370 permanent full-time workers and 4,306 contractors for the mining operations during 2019. The mine produced 29.2Mt in 2019.

The Sishen mine employs the open-pit mining method involving drill and blast. The mined ore is trucked to the nearby beneficiation plant. The mine uses a fleet of P101-4100 shovels and 960 hauling trucks. Strong performance of the shovel fleet in 2019 allowed the mine to exceed equipment efficiency targets.

The owner fleet efficiency of the mining operation increased from 65% in 2018 to 68% in 2019. The ore undergoes dense media separation (DMS) and the jig processes at the beneficiation plant. It is crushed, washed and separated into coarse, medium and fine materials by wet screening. The Sishen Jig Plant is the largest facility of its kind in the world.

A joint venture development agreement was signed between Kumba and Exxaro in April 2012 to utilize the latter's ultra-high dense-medium separation (UHDMS) technology in Kumba operation. Tenova Bateman has been awarded a contract to supply a 50tph modular beneficiation plant based on UHDMS technology for the Sishen mine as part of this initiative. The Sishen Jig Plant was officially opened in November 2008, while the UHDMS pilot plant at the mine became operational in the fourth quarter of 2013. The feasibility analysis for UHDMS is extended to the second half of 2020 to reassess a significant portion of the detailed engineering concept and to incorporate additional value-added products. The first production

is expected to be completed in the first half of 2023. The products of Sishen include 25mm 65% Fe lump (DMS), 25mm 64% Fe lump (jig plant), 27mm and 20mm 66% Fe lump, and 8mm 64.5% Fe fines.

Several brownfield expansion projects are in the pipeline for Sishen's operation. The projects include the Sishen lower-grade project phases 1 & 2, SEP1B, and the Sishen DMS concentrate project. The Sishen lower-grade project phase 1, which is in the concept study stage, aims at producing 1.7Mtpa or iron ore by processing the waste material from the Sishen jig plant. First production from the project is expected by 2019.

The Sishen lower-grade project phase 2 is currently in the exploration stage. The project aims at producing an additional 4.3Mtpa of iron ore for 20 years with the use of advanced beneficiation technology from the lower-grade Sishen resources previously classified as waste. The project is expected to begin production in 2019.

The SEP1B project, which is under implementation, will process the 0.2mm to 1mm fraction of the jig plant ROM feed which is being currently discarded. The project is expected to be completed in 2013. It will produce an additional 0.73Mtpa while increasing the product yield of the jig plant by 3% when completed. The Sishen dense medium separation plant (DMS) achieved nameplate production capacity of 28.4Mt in 2008, which increased to 29Mt in 2009.[43]

8.2. Vegetation.

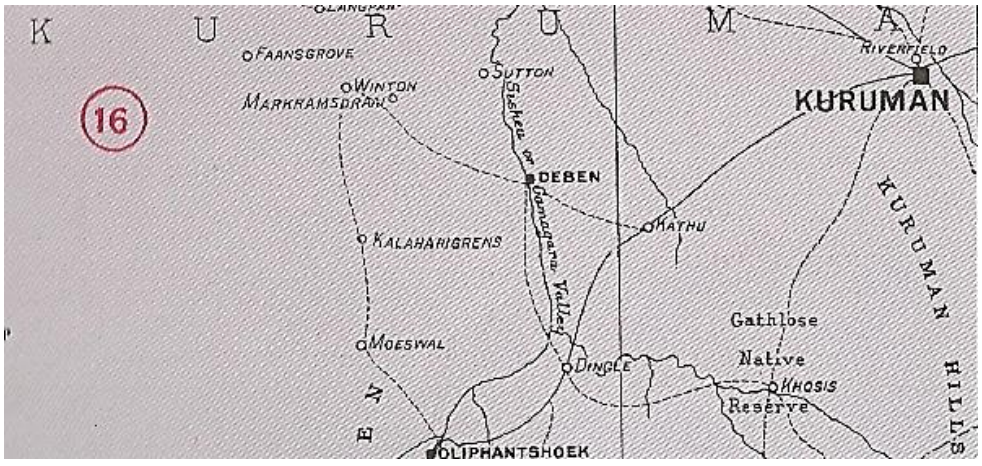


Figure 78. *The site under investigation on the farms Gamagara and Doornvlei is located at the heartland of veld type zone 16. Acocks describes this as Kalahari Thornveld.* ***(Acocks, 1988.)***[44]

Type 16. Kalahari Thornveld. *(Acocks, pp44.)*
According to Acocks there are two different types in this category. 16a is Kalahari Thornveld Proper and 16b represents the Vryburg Shrub Bushveld. Both these are again subdivided in several categories. The present study area fits best in category 3 of the Kalahari Thornveld Proper. This is called "Central Form" and it extends from Hopetown to Kimberly and onwards

[43] www.mining-technology.com/projects/sishen-mine-northern-cape/
[44] The author is aware of the updated version of Acocks's work by Mucina &Rutherford, 2010, but for the purposes of this investigation Acocks version is preferred by the present author.

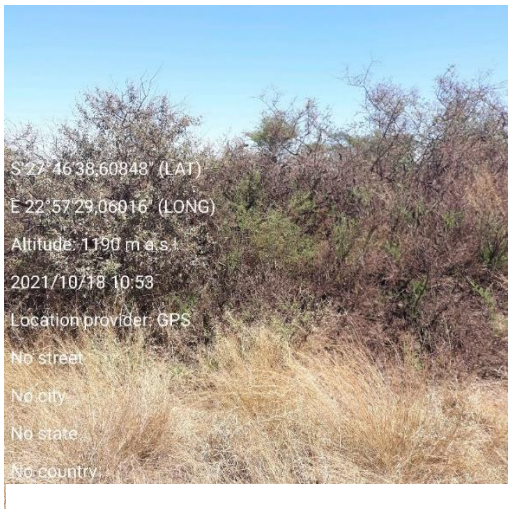
to Vryburg This is essentially an *Acacia erioloba* - Savannah with some of the grasses of the Dry *Cymbopogon - Themeda* veldt and some of those in the Western Form.

Rainfall is only about 400 mm per annum so that the veld has not been disturbed by ploughing as such. The "purple grasses" of the Dry *Cymbopogon - Themeda* veldt have fallen out except *Themeda* and have been replaced by the white grasses of the Kalahari.

Themeda however is the natural dominant, which mainly distinguishes it from the Western Form, even though it is to be found today, as dominant, only on exceptionally well cared farms. Further overgrazing will in turn cause the "white grasses" to be replaced entirely by uniform growth of *Schmidtia pappophoroides*; this change can happen quite suddenly, in a few years. *Pentzia incana* and *Chtysocoma ciliate* are steadily invading, and today these Karoo bushes will be more important than they were 14 years ago when the daughter about this veldt were collected. Dominant trees and shrubs are as follows: - *Acacia tortillus, subsp, heteracantha, Lucium cinerium, Diospyros pallens, Rhus ciliate Grewia flava, Lycium hirsutum, Tarchonanthus camphorates, Ziziphus mucronata, Acacia erioloba, Acacia mellifera subsp, detinens, Protoasparagus laricinus, Acacia hebeclada subsp, hebeclada* and *Ehretia rigida.*

The grasses on the other hand are extremely abundant. Acocks lists in his relative abundance table at least 270 species. It is a rich flora, with the forbs and annuals playing an important role. The cover, however is sparse, the grasses being tall and tufted. *Gregeria ornativa* is relatively scarce; other poisonous plants, which may be locally common, include *Gregeria brevifolia. Gregeria obtusifolia* and *Urgenia sanguine.*

8.3. Geology and vegetation. Impact on fieldwork.



The inherited landscape consists of an undulating calcite derived from dolomitic origin. This material is very hard and does not weather easily into any form of fertile topsoil. This substructure supports mainly two indigenous tree species namely *Tarchonanthus camphorates* (camphor bush) and *Senegalia mellifera* (black thorn or swarthaak), and one vigorous invader Mesquites.

On large portions of the site under investigation it is physical impossible to do an on-foot survey. The only means of access is by motor vehicle on tracks bulldozed for exploration drilling.

Figure 79. *The site under investigation most of the time consist of impenetrable Tarchonanthus camphorates and Senegalia mellifera****. (Photo, S.M. Miller 2021.)***[1]

Figure 81. *The site under investigation is also covered in Acacia erioloba grass-veld that makes it virtually impossible to notice small finds.* ***(Photo, S.M. Miller 2021.)***

Figure 80. *Security measures on the mine also seriously hamper on-site investigation, especially temporally erecter and forgotten in the veld****. (Photo, S.M. Miller 2021.)***

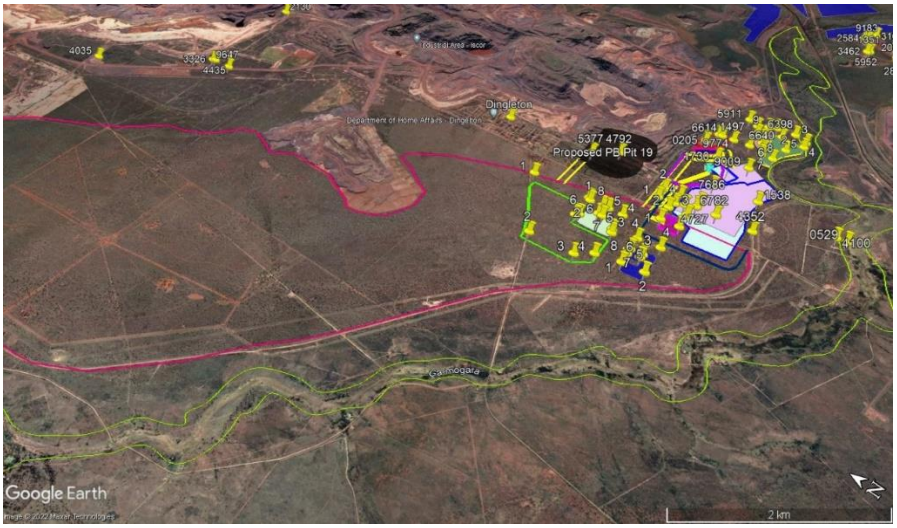


Figure 82. *Thorn Vegetation demarcation****. (Red line). (Shangoni KMZ No 53.)***

The spread of a dense "Thornfield" (red outline), has now also officially been proclaimed by biologists working on EIA research at Sishen. Both animal and human movement would have been seriously impeded in the past. As can be seen here modern access is only through straight line bulldozed roads.

The undulations though have over time been filled in with drifting Kalahari sands that supports stands of grass, especially Aristida spp. This forms an, open nearly savanna type of landscape, that is more readily accessible on foot. Owing to the character of these grasses is impossible to actually see anything on the surface

The final and one of the most inhibiting factors to consider doing HIA work on mining property is rules, regulations and restriction to certain areas on site, as well as the razor wire seen in the image adjacent that was placed in the past as "temporary" fencing, but is not really generally known to exist.

Addendum 9. Grading and impact.
Appropriate process for grading and the appropriate impact tables.

11.1. Process to be followed.
11.1.1. Step 1: Determine the PROBABILITY of the impact by calculating the average between the frequency of the aspect, the availability of a pathway to the receptor, and the availability of the receptor. ***(Thus: Sum of the three column scores below ÷ 3.)***

Frequency of aspect/ impact	Score	Availability of pathway from the source to the receptor	Score	Availability of receptor	Score
Never known to have happened, but may occur.	1	A pathway to allow for the impact to occur is never available.	1	The receptor is never Available.	1
Known to happen in industry.	2	A pathway to allow for the impact to occur is almost never available.	2	The receptor is almost never available.	2
< once a year.	3	A pathway to allow for the impact to occur is sometimes available.	3	The receptor is sometimes available.	3
Once per year to up to once per month.	4	A pathway to allow for the impact to occur is almost always available.	4	The receptor is almost always available.	4
Once a month to Continuous.	5	A pathway to allow for the impact to occur is always available.	5	The receptor is always Available.	5

Figure 83. *Table 1. Probability.*

11.1.2. Step 2: Determine the MAGNITUDE of the impact by calculating the average of the factors below. (Thus: Sum of all six column ratings below ÷ 6.)

Source.								Receptor.			
Duration of Impact.	Score.	Extent.	Score.	Intensity.	Score.	Destruction Effect.	Score.	Reversable.	Score.	Significance of heritage.	Score.
Lasting days to a month.	1	Limited to the site.	1	Very small.	1	No loss.	1	Reversable	1	No/low significance Grade IIIC.	1
Lasting 1 month to 1 year.	2	Limited to site and immediate surroundings.	2	Small.	2	Small loss at local level.	2	Local impact but still reversible.	2	Medium local significance Grade IIIB.	2
Lasting 1 to 5 years.	3	Impacts ex-tend beyond site boundary.	3	Moderat e.	3	Moderate loss at local level.	3	Partially Reversible.	3	High local significance Grade IIIA.	3
Lasting 5 years to Life of Organization	4	Impact on regional scale / adjacent sites	4	Large	4	Regional loss	4	Potentially irreversible	4	High regional significance Grade II (Provincial)	4
Beyond life of Organization/ Permanent impacts	5	Extends nationally or globally	5	Very large	5	National loss	5	Irreversible	5	High National significance Grade II (National)	5

Figure 84. *Table 2. Magnitude.*

11.1.3. Step 3: Determine the SEVERITY of the impact by plotting the averages that were obtained above for Probability and Magnitude in the table below.

ENVIRONMENTAL IMPACT RATING/PRIORITY					
PROBABILITY	MAGNITUDE				
	1 Minor	2 Low	3 Medium	4 High	5 Major
5 Almost Certain	Low	Medium	High	High	High

4 Likely	Low	Medium	High	High	High
3 Possible	Low	Medium	Medium	High	High
2 Unlikely	Low	Low	Medium	Medium	High
1 Rare	Low	Low	Low	Medium	Medium

Figure 85. *Table 3. Severity.*

11.2. Impact of the finds during the present HIA field work.

A small, localised exposure of VERY MIXED ESA/MSA/LSA material was located in an old quarry pit at 9588 (27°49'3.07"S, 22°59'45.15"E), 8101 (27°49'2.85"S, 22°59'45.63"E) and 4935 (27°49'4.56"S, 22°59'45.37"E).

Figure 86. *A number of the lithics found (out of context) in an excavated quarry for road building material.* ***(Photo, S.M. Miller, 2022.)***[45]

The site is afforded a field rating of Grade IIIC, Not Conservation Worthy (NCW) and has been adequately documented as part of this Phase I Assessment. It is recommended that the site be granted destruction authorisation at the discretion of the relevant heritage authority outside of the formal permitting process. The rocky nature of the area makes it highly unlikely for any further lithics or other heritage material to be present on this location.

Frequency of aspect/ impact	Score	Availability of pathway from the source to the receptor	Score	Availability of receptor	Score
Never known to have happened, but may occur.	1	A pathway to allow for the impact to occur is never available.	1	The receptor is never Available.	1
Known to happen in industry.	2	A pathway to allow for the impact to occur is almost never available.	2	The receptor is almost never available.	2

[45] ***For full recording of lithics found, see Addendum 9.***

< once a year.	3	A pathway to allow for the impact to occur is sometimes available.	3	The receptor is sometimes available.	3
Once per year to up to once per month.	4	A pathway to allow for the impact to occur is almost always available.	4	The receptor is almost always available.	4
Once a month to Continuous.	5	A pathway to allow for the impact to occur is always available.	5	The receptor is always Available.	5
				Impact probability equals (2+2+2) ÷3=	2

Figure 87. *Table 4. Probability assessment of the present HIA fieldwork results.*

Source.								Receptor.			
Duration of Impact.	Score.	Extent.	Score.	Intensity.	Score.	Destruction Effect.	Score.	Reversable.	Score.	Significance of heritage.	Score.
Lasting days to a month.	1	Limited to the site.	1	Very small.	1	No loss.	1	Reversable	1	No/low significance Grade IIIC.	1
Lasting 1 month to 1 year.	2	Limited to site and immediate surroundings.	2	Small.	2	Small loss at local level.	2	Local impact but still reversible.	2	Medium local significance Grade IIIB.	2
Lasting 1 to 5 years.	3	Impacts ex-tend beyond site boundary.	3	Moderat e.	3	Moderate loss at local level.	3	Partially Reversible.	3	High local significance Grade IIIA.	3
Lasting 5 years to Life of Organization	4	Impact on regional scale / adjacent sites	4	Large	4	Regional loss	4	Potentially irreversible	4	High regional significance Grade II (Provincial)	4
Beyond life of Organization/ Permanent impacts	5	Extends nationally or globally	5	Very large	5	National loss	5	Irreversible	5	High National significance Grade II (National)	5
										Impact Magnitude equals (1+1+1+1+5+5) ÷ 6	2

Figure 88. *Table 5. Magnitude assessment of the present HIA fieldwork results.*

ENVIRONMENTAL IMPACT RATING/PRIORITY					
PROBABILITY	MAGNITUDE				
	1 Minor	2 Low	3 Medium	4 High	5 Major
5 Almost Certain	Low	Medium	High	High	High
4 Likely	Low	Medium	High	High	High
3 Possible	Low	Medium	Medium	High	High
2 Unlikely	Low	Low	Medium	Medium	High
1 Rare	Low	Low	Low	Medium	Medium

Figure 89. *Table 6. Severity assessment of the present HIA fieldwork results.*

From the impact assessment tables above, it is evident that the impact of the proposed project on heritage resources will be of Low Environmental Significance without mitigation.

11.3. Planning and Design, Pre-construction and Construction Phase.

No.	Aspect affected	Activity	Potential Impact	Reversibility	Irreplaceable loss	Phase	Size and scale of disturbance observed	Significance pre-mitigation			Mitigation Type	Significance post-mitigation		
								Probability	Magnitude	Significance		Probability	Magnitude	Significance
1	Heritage	Project code: SIS-SIS-22-04-25 At present no impact is requested by client in this area.	No impact	Impact already occurred non reversable	Low degree	N/A	1 ha	2	2	Low	No mitigation required	2	2	Low

Figure 90. *Table for impact in the Planning and Design, Pre-construction and Construction Phase.*

11.4. Measures to rehabilitate the environment affected by the proposed project.

No.	Aspect affected	Activity	Potential Impact	Phase		Mitigation type	Impact management actions / Mitigation measures	Impact management outcome	Standard to be Achieved	Time period for implementation
1	Heritage	Project code: SIS-SIS-22-04-25	No impact	Through-out		N/A	N/A	N/A	N/A	Through-out

Figure 91. *Table for Measures to rehabilitate the environment affected by the proposed project.*

11.5. Risk Mitigation.

SAHRA (2007: 4) defines mitigation as '[t]he act or effort by a qualified heritage specialist appointed by a developer to lessen the impact of a development on heritage resources within or near the development footprint'. The authors of this report are confident that the heritage occurrences of the property under review were adequately documented and assessed during the HIA.

The HIA field study surveyed the surface only, a procedure than 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, dense vegetation cover in some parts of the surveyed area, and the subterranean nature of certain archaeological sites that are buried through sediment accumulations.

Addendum 10. Separate document attached.