Archaeological Impact Assessment

For The Proposed Prospecting Right of a Quarry On The Farm Gamohaan 438 Portion 1 In The Kuruman Magisterial District

Prepared for

Site Plan Consulting CC

By

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EXECUTIVE SUMMARY

Site Plan Consulting CC, on behalf of Afrimat, appointed Heritage Contracts and Archaeological Consulting CC (HCAC) to conduct an Archaeological Impact Assessment as part of the prospecting right application for the use of an abandoned hard rock quarry on the farm Gamohaan 438 Portion 1 in the Kuruman Magisterial District. The study forms part of the Basic Assessment for the project.

The site was visited over a period of 1 day and based on the results of the study there are no significant archaeological risks associated with the prospecting of the old abandoned quarry. The existing quarry has already changed the character of the site, however no traces of Stone Age material were found during the survey and from an archaeological point of view the impact of the quarry on heritage resources is negligible. The lack of Stone Age material concurs with similar observations of very sparse Stone Age occurrences made by Pelser (2012a,b) and Morris 2010, 17 km to the south east in Kuruman, van der Walt (2012) north east of Kuruman and more recently Magoma (2013) who assessed a large area surrounding the current study area . No buildings exist on the site and no cultural landscape elements were noted. Visual impacts to scenic routes and sense of place are also considered to be low. No further mitigation is recommended for this aspect.

From an archaeological point of view the project is viable and no further archaeological mitigation is required. However if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

General

Due to the subsurface nature of archaeological material and unmarked graves, the possibility of the occurrence of such finds cannot be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find/s.

Disclaimer: *Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Heritage Contracts and Archaeological Consulting CC and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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- The results of the project;
- The technology described in any report;
- Recommendations delivered to the Client.

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ABBREVIATIONS

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMP: Environmental Management Plan
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

**Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

GLOSSARY

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 BACKGROUND INFORMATION

Heritage Contracts and Archaeological Consulting CC (HCAC) was appointed to conduct an Archaeological Impact Assessment for the proposed prospecting right application for a recently utilised hard rock quarry on the Farm Gamohaan 438 Portion 1 in the Kuruman Magisterial District. The aim of the study is to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, that includes collection from various sources and consultations; Phase 2, the physical surveying of the study area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey no sites of heritage significance were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to the SAHRA for review.

1.1 Terms of Reference

Desktop study

Conduct a brief archaeological desktop study where information on the area is collected to provide a background setting of the archaeology that can be expected in the area.

Field study

Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with Heritage legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

1.2. Archaeological Legislation and Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of a heritage specialist input is to:

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources;
- Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2)(b) of the NEMA and sections 39(3)(b)(iii) of the MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the SADC

region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually

delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

1.3 Description of Study Area

1.3.1 Location Data

The proposed development is located on farm Gamohaan 438 Portion 1 in the Kuruman Magisterial District. Access to the site is from the R31 between Kuruman and Hotazel. The vegetation is predominantly Kuruman thornveld in the Savannah biome (Mucina & Rutherford 2006). Historical imagery on Google earth indicates that the land has been fallow for a number of years apart from the used quarry. The prospecting area is located at the foot and partway up the slope of the northern edge of the Kuruman hills. There is an existing excavation (Figure 1) with a face height of 25m (BID 2013). The current excavation surface area is 9 968m². Below the excavation the slope breaks and becomes much flatter. This area is suitable for and was utilised for plant, stockpiling and logistics.

Figure 1: Existing Gamohaan quarry.

1.3.2. Location Map

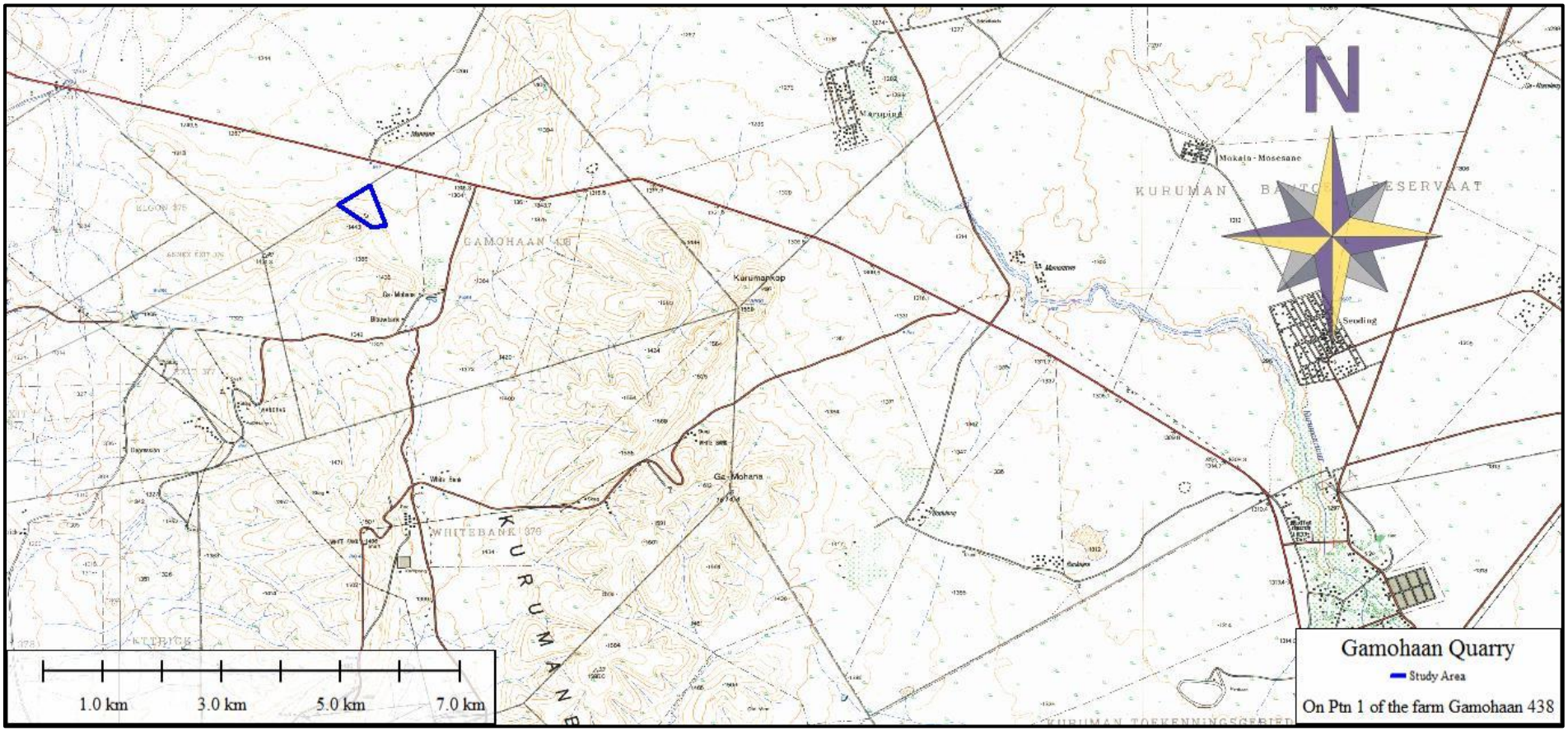

Figure 2: Location map

2. APPROACH AND METHODOLOGY

The aim of the study is to cover archaeological databases to compile a background of the archaeology that can be expected in the study area followed by field verification; this was accomplished by means of the following phases and is reported on in Section 4 of this report.

2.1 Phase 1 - Desktop Study

The first phase comprised a desktop study scanning existing records for archaeological sites. Due to the small size of the proposed development and the fact that it is an existing quarry that would have demolished any surface traces of historical finds no archival work was conducted for this project.

2.1.1 Literature Search

Utilising data for information gathering stored in the archaeological database at Wits and previous CRM reports done in the area. The aim of this is to extract data and information on the area in question.

2.1.2 Information Collection

The SAHRA report mapping project (Version 1.0) and SAHRIS was consulted to collect data from previously conducted CRM projects in the region to provide a comprehensive account of the history of the study area.

2.1.3 Consultation

No public consultation was done during the study as this is done as part of the BA.

2.1.4 Google Earth and Mapping Survey

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located.

2.1.5 Genealogical Society of South Africa

The database of the Genealogical Society was consulted to collect data on any known graves in the area.

2.2 Phase 2 - Physical Surveying

Due to the nature of cultural remains, the majority of which occurs below surface, a field survey of the study area was conducted over 1 day. The study area was surveyed by means of vehicle and extensive surveys on foot on the 20th July 2013. The survey focused on the footprint of the existing quarry (Figure 3) and its proposed expansion within the 24 ha, to accommodate the logistical and stock piling area. Track logs of the areas covered were taken (Figure 4).

Figure 3: Expansion of existing quarry.

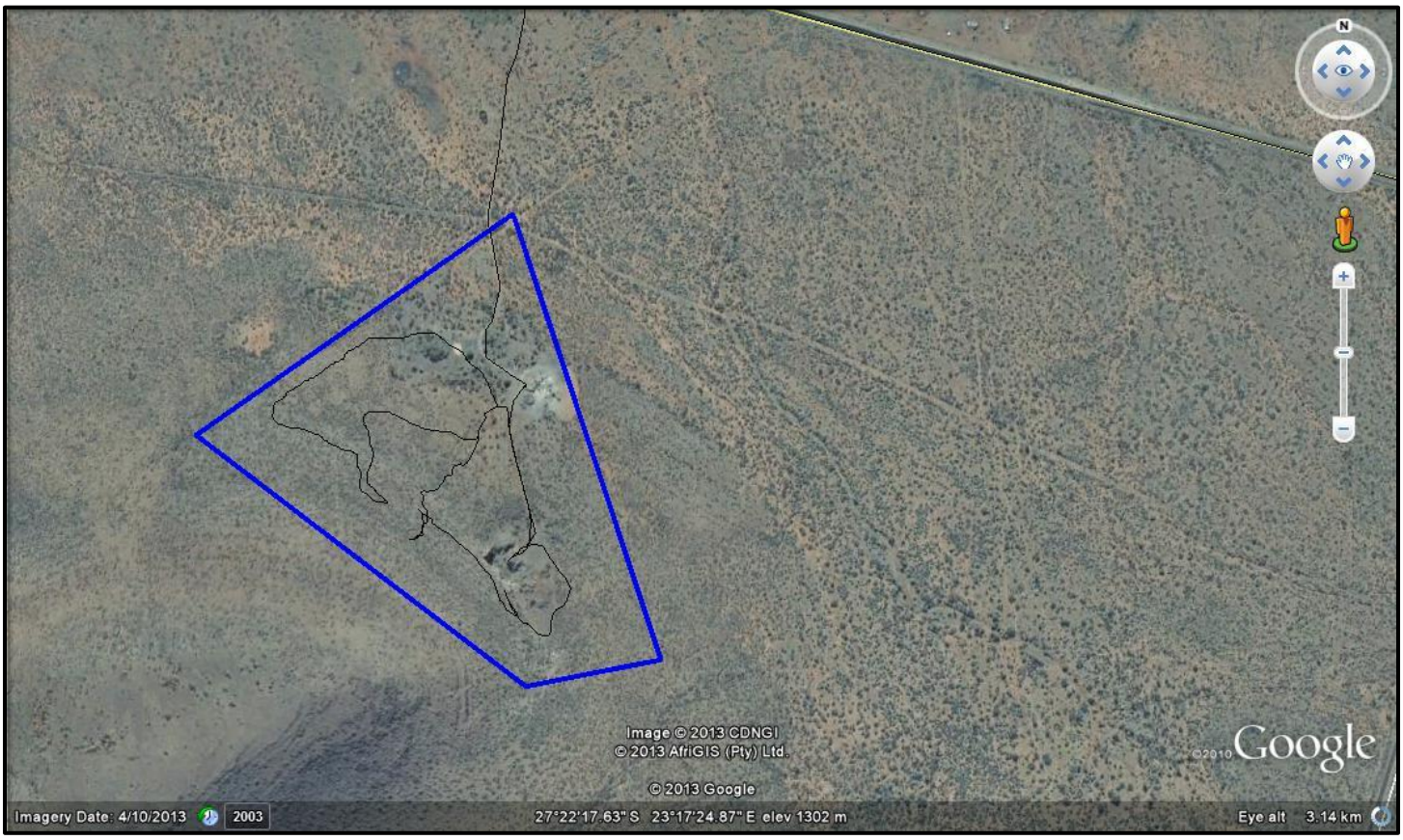

Figure 4: Track log of area covered in black with study area in blue.

2.3. Restrictions

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. Low archaeological visibility of parts of the study area is due to sand and grass cover and extensive disturbance from previous mining, and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Only the development footprint was surveyed as indicated in the location map, and not the entire farm. The study did not include social consulting or a palaeontological assessment. It is assumed that information obtained for the wider region is accurate and applicable to this study.

Although HCAC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

3. NATURE OF THE DEVELOPMENT

Prospecting is planned to take place through a combination of:

- Bulk sample drill and blasting of selected cuts in the faces and floors of the existing quarry and of the geological mapping projection of the horizontal strike of that bulk sample result, complemented by;

- Drilling in the projected resource area to prove the continuity of the material quality proven by the bulk sample cuts

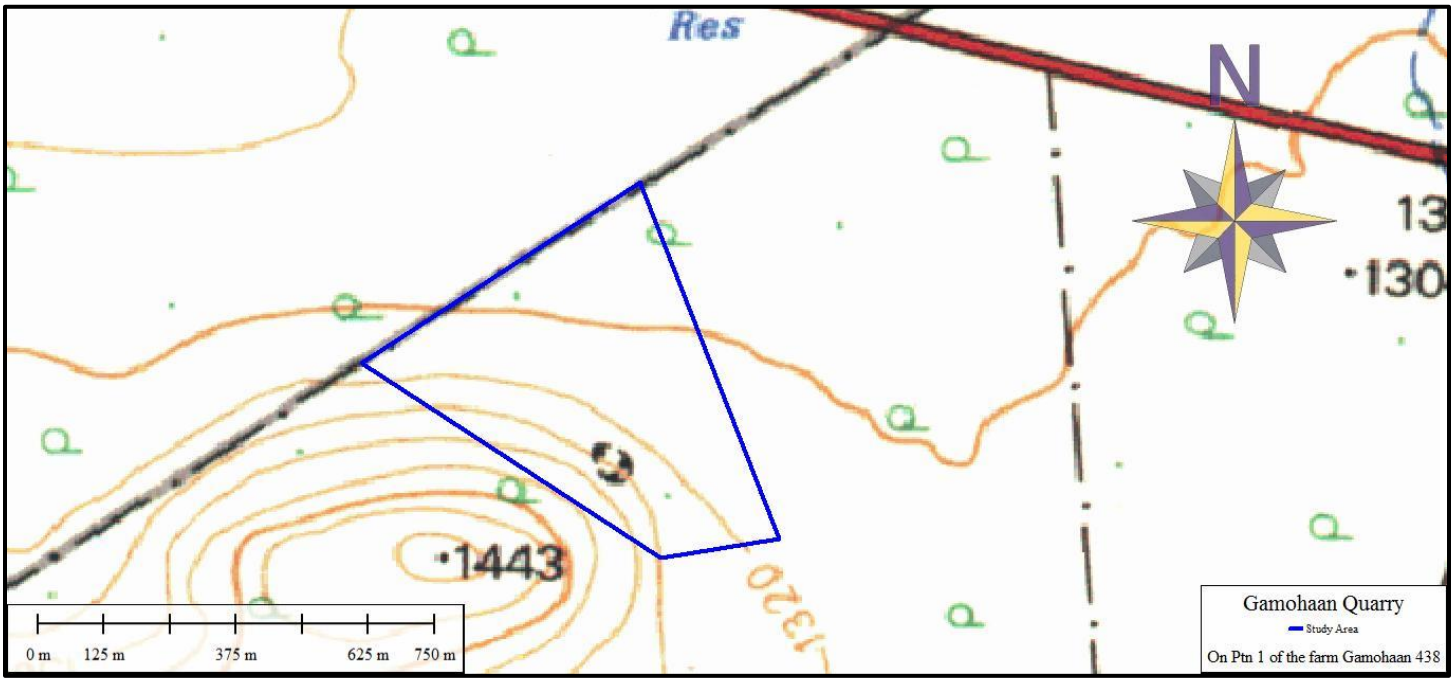

Figure 4: Mining area indicated in blue on the 2723 AD topographic sheet.

4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

4.1 Databases Consulted

SAHRA Report Mapping Project

Four previous heritage studies were conducted close the study area (SAHRA report mapping project V1.0 and SAHRIS accessed July 2013) by D Morris (2010), A Pelser (2012a,b) and van der Walt (2012). These studies were conducted to the East of the study area in Kuruman. These studies recorded very sparse MSA artefacts scattered over the landscape. Closer to the current study area Magoma (2013) assessed a 2000ha area for prospecting surrounding the current study area. Well to the west of the current study area he recorded a low significance cluster of MSA artefacts as well as a cemetery and a place of worship.

Genealogical Society and Google Earth Monuments

Neither the Genealogical Society nor the monuments database at Google Earth (Google Earth also include some archaeological sites and historical battlefields) have any recorded sites in the study area.

4.2. Background

The Northern Cape has a wealth of heritage sites (Beaumont & Morris 1990; Morris & Beaumont 2004). Archaeological sites include the world renowned Wonderwerk Cave and the major Tswana town and the LIA stone-walled settlements at Dithakong 40 km north of Kuruman (De Jong 2010). Other important sites in the larger area include Tsantsabane, an ancient specularite working on the eastern side of Postmasburg and Doornfontein, another specularite working north of Beeshoek.

Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the so-called 'first people'. Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is refered to as the Ceramic Late Stone Age (De Jong 2010) and is represented by the Blinkklipkop specularite mine near Postmasburg and a cluster of important finds at the Kathu Pan. Additional specularite workings with associated Ceramic Later Stone Age material and older Fauresmith sites (early Middle Stone Age) are known from Lylyfeld, Demaneng, Mashwening, King, Rust & Vrede, Paling, Gloucester and Mount Huxley to the north. Rock engraving sites are known from Beeshoek and Bruce (Morris 2005: 3).

More locally, the two shelters on the northern and southern faces of GaMohaan (in the Kuruman Hills north west of the town) contain Later Stone Age remains and rock paintings.

Studies done by Kusel (2009) and by Pelser & Van Vollenhoven (2011) at Black Rock and Gloria Mines near Hotazel, also revealed a number of Early to Later Stone Age artefacts and sites in the area.

The difaqane coincided with the penetration of the interior of South Africa by white traders, hunters, explorers and missionaries. The first was PJ Truter's and William Somerville's journey of 1801, which reached Dithakong at Kuruman. They were followed by Cowan, Donovan, Burchell and Campbell and resulted in the establishment of a London Mission Society station near Kuruman in 1817 by James Read. Robert Moffat and his wife Mary came to Kuruman in 1820 and the mission has been known as The Moffat Mission Station ever since.

The 'Eye' and the water course springing from it have been a focus of utilization and settlement and it was in its immediate vicinity that Kuruman, as town, evolved from the late nineteenth century. Kuruman's name is thought to be derived from the name of an 18th century San leader Kudumane. A fair amount of information on the general history of Kuruman and the Moffat Mission Station is available.

5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES

The presence and distribution of heritage resources define a ‘heritage landscape’. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed quarry extension the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposits;
- The wider historic, archaeological and geographic context of the site;
- The location of the site in relation to other similar sites or features;
- The depth of the archaeological deposit (when it can be determined/is known);
- The preservation condition of the sites;
- Potential to answer present research questions.

Furthermore, The National Heritage Resources Act (Act No 25 of 1999, Sec 3) distinguishes nine criteria for places and objects to qualify as ‘part of the national estate’ if they have cultural significance or other special value. These criteria are:

- Its importance in/to the community, or pattern of South Africa’s history;
- Its possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage;
- Its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage;
- Its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects;
- Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;

- Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- Sites of significance relating to the history of slavery in South Africa.

5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 7 of this report.

FIELD RATING	***GRADE***	***SIGNIFICANCE***	***RECOMMENDED MITIGATION***
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

6. BASELINE STUDY-DESCRIPTION OF AREA

No archaeological material was identified during the survey. This is not surprising as similar observations have been made to the east of the study area for example Pelser (2012a,b), Morris (2010), Morris & Msawula (2010) and van der Walt 2012, where limited Stone Age material or no material at all was recorded. However to the west in the areas of Black Rock and Hotazel higher frequencies of Stone Age material have been recorded dating to the Early to Later Stone Age (Kusel 2009; Pelser & Van Vollenhoven 2011). The two shelters on the northern and southern faces of GaMohaan that contain Later Stone Age remains and rock paintings is of interest as it is closer to the present study area. A Survey of 2000ha surrounding and including the current study area (Mogoma 2013) noted that no archaeological material was noted south of the R31 towards the hills (where the current study area is located).

From an archaeological perspective the significance of Stone Age occurrences is low, conforming to other studies in the area, this could be due to the lack of shelters on the hill or suitable raw material for stone tool manufacture amongst other things.

The site is underlain by Dolomite of the Ghaap Plateau Formation, which until recently has been protected from weathering by the overlying banded ironstones of the Asbesberge Formation which form the cap of the hill behind the quarry site (Figure 6). The existing quarry has a face of 25 meter and impacted on an area of approximately 60 x 100 meter with a stockpiling area of approximately 95x59 meter (figure 5 & 8). The site was visited in the company of Mr Willie Prins from Afrimat who indicated the area that will be expanded (figure 7).

Figure 5. View of the disturbed area from the hill.

Figure 6. Banded Iron Stone that cap the hill.

Figure 7. View of the cliff face and the proposed expansion area in black.

Figure 8. View of the study area from the south west.

7. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study there are no significant archaeological risks associated with the re use of the old abandoned quarry. The existing quarry has already changed the character of the site, however no traces of Stone Age material were found during the survey and from an archaeological point of view the impact of the quarry on heritage resources is negligible. Furthermore no indications of stratified archaeological deposits were noted. The lack of Stone Age material concurs with similar observations of very sparse Stone Age occurrences made in the larger area by Pelser (2012a,b), Morris 2010 and van der Walt 2012, 12 km to the west in Kuruman and locally by Magoma 2013.

No buildings exist on the site and no cultural landscape elements were noted. Visual impacts to scenic routes and sense of place are also considered to be low. No further mitigation is recommended for this aspect.

Due to the subsurface nature of archaeological material and unmarked graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

There were no red flags identified during the AIA and subject to approval from SAHRA there is from an archaeological point of view no reason why the development should not proceed

9. PROJECT TEAM

Jaco van der Walt, Project Manager

10. STATEMENT OF COMPETENCY

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also valid for/acknowledged by SAHRA and AMAFA.

Currently, I serve as Council Member for the CRM Section of ASAPA, and have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique, Tanzania and the DRC; having conducted more than 300 AIAs since 2000.

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