

# LETTER OF RECOMMENDATION FOR THE EXEMPTION OF A FULL PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED CRUSHER PLANT UTILISING THE WASTE ROCK DUMP, KOFFIEFONTEIN MINE, NORTHERN CAPE PROVINCE.

Prepared for



**GREENRSA (PTY) LTD** Reg. No. 2016/047456/07

Biodiversity and Environmental Consultants

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Prepared by: G&A Heritage Management Properties (Pty) Ltd



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The phase 1 archaeological impact assessment survey was conducted as a requirement of the National Heritage Resources Act 1999, Section 38 (1)(c)(i): 38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as;

- any development or other activity which will change the character of the site
- Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length.

This report follows the minimum standard guidelines required by the South African Heritage Resources Agency (SAHRA) and the Northern Cape Provincial Heritage Resources Agency (NCPHRA) for compiling a Letter of Recommendation for the exemption of a Full Phase 1 Archaeological Impact Assessment (AIA).

## EXECUTIVE SUMMARY

### The type of development:

The requirements of this basic assessment (BA) were to study a mobile crusher plant operation and its environmental impacts on two possible project sites. Also, to determine the significance of the impacts that the proposed project will have on the identified sites and beyond. Since the site is 4 hectares and that the alternative option is on natural vegetation it triggered listing notice 1(27) – the clearance of one hectare or more but less than 20 hectares – which requires a basic assessment (BA). It also triggered notice 1(26) “developments of 1000 square metres or more, on land previously used for mining or heavy industrial purposes” applicable to option one, lower waste rock dump site.

The project sites are at the Koffiefontein mine. The one possible site is at the base of the rock dump and the other site is situated in the game farm south-west of the Ebenaeser excavation. See page 8, site options. These project sites and the surrounding area were assessed for any sensitive ecosystems including drainage lines and wetlands. It was found that the site at the base of the rock dump is highly degraded with almost no vegetation on the site. The site in the game farm (option 2) is situated on natural vegetation. There are no wetlands or drainage lines on these project sites. The Koffiefontein mine is situated in the Northern Upper Karoo (NKu 3) vegetation type.

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### Terms of reference

The initial proposal was for a complete Phase 1 Archaeological Impact Assessment (AIA) for the proposed crusher plant. The purpose of the First Phase AIA was to describe and evaluate the significance of possible archaeological heritage sites; the potential impact of the development on these and to provide recommendations to minimize possible damage.

### Summary of Environmental Findings

- All environmental impacts evolve around the operation of the plant since it is a mobile machine. There is therefore no construction phase;

- The alternative sites are evaluated against environmental impacts during the operational phase;
- Option two, on the game farm, is covered by natural vegetation but is situated closer to the mine boundary/entrance that makes access easier to control;
- Load and haulage costs, crusher material from the rock dump to the crusher site in the case of option 2, outweigh by far the benefit of being close to the mine boundary;
- Natural vegetation and part of the game farm for option 2 means an additional area used for industrial purposes while option 1 is already denuded and heavily impacted needing rehabilitation. By this operation, the rock dump site is utilised and can thus be rehabilitated as required in the closure plan;
- Air pollution, fugitive dust, becomes a problem when production is in excess of 10 tons per hour. Keeping the production at that level in combination with site option 1, the risk of legal standard exceedance is very low even considering the cumulative impact in combination with the mine activities;
- The mine has a dust monitoring system in place as well as a management plan. The roads are treated on a regular basis for dust suppression so no new measures need to be introduced. This must however be monitored on a regular basis;
- From a social point of view all new projects operating in a sustainable and environmental friendly manner should be supported because it creates much noise.

### Heritage Findings

The rock dump site has undergone severe alteration in the past and it is thought that no heritage features would have survived on or near the surface. The planned activities are also not of such an intrusive nature as to endanger the paleontological deposits of the site.

## DESCRIPTION OF THE PROPERTY

### Location

The project sites are at the Koffiefontein mine. The one possible site is at the base of the rock dump and the other site is situated in the game farm south-west of the Ebenaeser excavation. See page 8, site options. These project sites and the surrounding area were assessed for any sensitive ecosystems including drainage lines and wetlands. It was found that the site at the base of the rock dump is highly degraded with almost no vegetation on the site. The site in the game farm (option 2) is situated on natural vegetation. There are no wetlands or drainage lines on these project sites. The Koffiefontein mine is situated in the Northern Upper Karoo (NKu 3) vegetation type. According to Mucina & Rutherford (2006), this vegetation type has a conservation status of “Least Threatened” and according to BGIS it is not a threatened ecosystem.

### Map

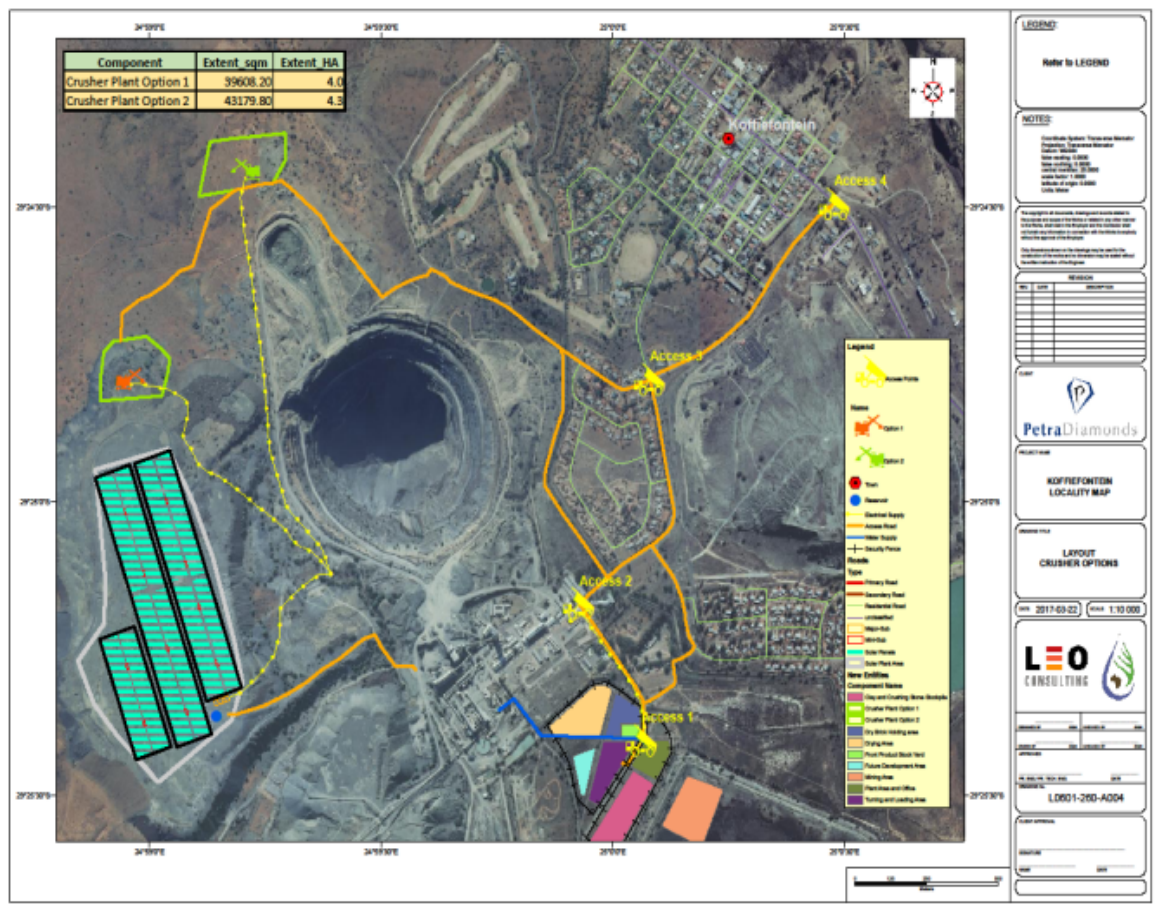


Figure 1. Upgrade location

## ARCHAEOLOGICAL INVESTIGATION

### Results of the Archaeological Evaluation

The rock dump site has undergone severe alteration in the past and it is thought that no heritage features would have survived on or near the surface. The planned activities are also not of such an intrusive nature as to endanger the paleontological deposits of the site.



*Figure 2. Rock dump area*



*Figure 3. Rock dump site*

## CONCLUSION

From the three potential sites identified for the crusher plant, the rock dump area has the least potential for harbouring any sites of heritage significance. The mobile plant is not expected to impact on any heritage features and the site is therefore requested to be exempt from a full HIA or AIA. This finding is only valid for the areas covered by rock dumps. Should the development at a later stage encounter unaltered deposit an archaeological inspection will be needed.

## RELEVANT ARCHAEOLOGICAL IMPACT ASSESSMENTS

- Henderson, Z. 2001. Archaeological Survey for De Beers Consolidated Mines, Koffiefontein Mine, a Division of Central Mines.
- Henderson, Z. 2004. Heritage Survey for De Beers Consolidated Mines, Koffiefontein Mine.
- Henderson, Z. 2003. Report on the Excavation of an Informal Graveyard in the Whitworth Dump, De Beers Mine, Koffiefontein.

### Previous HIA's (Xhariep):

- Loudine, P. 2013. Heritage Impact Assessment of the Proposed Pipeline on subdivision 16 & Remain Extent of the farm Jagersfontein no. 14 in the Magisterial District of Xhariep, Free State Province.
- Webley, L., Botha-Brink, J., Salomon, A. 2012. Heritage Impact Assessment: Proposed Construction of the Ruimte Photovoltaic Solar Energy Facility, Wagenmaker's Drift 24, Xhariep District Municipality, Free State.

### Previous HIA's (Jagersfontein):

- Loudine, P. 2009. Phase 1 Impact Assessment of the Dormant Jagersfontein Mine (Free State) in terms of Archaeological and other Heritage Sites.
- Rossouw, L. 2014. Phase 1 Heritage Impact Assessment of a proposed new landfill site near Jagersfontein, Kopanong Local Municipality, FS Province.
- Dreyer, C. 2006. First Phase Archaeological Heritage Investigation of the Jagersfontein Bulk Water Supply Scheme, Free State.



## LETTER OF RECOMMENDATION

It is recommended that the proposed Crusher Plant at Koffiefontein Mine Gravel Dump, Northern Cape Province, is exempted from a full Phase 1 Archaeological Impact Assessment. The proposed area for development is low in cultural sensitivity. It is unlikely that any archaeological heritage remains will be found on the property. The development may proceed as planned.

There is always a possibility that human remains or other archaeological and historical material may be uncovered during the development. Such material must be reported to the Northern Cape Provincial Heritage Resources Agency (NCPHRA) or SAHRA.

This letter of recommendation only exempts the proposed development from a full Phase 1 Archaeological Heritage Impact Assessment, but not for other heritage impact assessments. The final decision rests with the heritage resources authority, which will supply the applicant with a record of decisions in regards this project.

The National Heritage Resources Act (Act No. 25 of 1999, section 35) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual linguistic or technological value or significance are protected. Any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

SIGNED;



STEPHAN GAIGHER  
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29 MAY 2017

## GENERAL REMARKS

It must be emphasised that the results of this survey are based on limited field observations and previous experience. These results can therefore be incorrect when analysed closer. Sites and material may be covered by soil and vegetation and will only be located once this has been uncovered.

Although unlikely, sub-surface remains of heritage sites could still be encountered during the construction activities associated with the project. Such sites would offer no surface indication of their presence due to the high state of alterations in some areas as well as heavy plant cover in other areas. The following indicators of unmarked sub-surface sites could be encountered:

- Ash deposits (unnaturally grey appearance of soil compared to the surrounding substrate);
- Bone concentrations, either animal or human;
- Ceramic fragments such as pottery shards either historic or pre-contact;
- Stone concentrations of any formal nature.

The following recommendations are given should any sub-surface remains of heritage sites be identified as indicated above:

- All operators of excavation equipment should be made aware of the possibility of the occurrence of sub-surface heritage features and the following procedures should they be encountered.
- All construction in the immediate vicinity (50m radius of the site) should cease.
- The heritage practitioner should be informed as soon as possible.
- In the event of obvious human remains the South African Police Services (SAPS) should be notified.
- Mitigation measures (such as refilling etc.) should not be attempted.
- The area in a 50m radius of the find should be cordoned off with hazard tape.
- Public access should be limited.
- The area should be placed under guard.
- No media statements should be released until the heritage practitioner has had sufficient time to analyze the finds.

## **APPENDIX A: HERITAGE LEGISLATIVE REQUIREMENTS**

Parts of sections 34(1), 35(4), 36(3) and 38(1) (8) of the National Heritage Resources Act 25 of 1999 apply:

### **Structures**

34. (1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

### **Archaeology, palaeontology and meteorites**

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

### **Burial grounds and graves**

36. (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

### **Heritage resources management**

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50m in length;
- (c) any development or other activity which will change the character of the site –
  - (i) exceeding 5000 m<sup>2</sup> in extent, or
  - (ii) involving three or more erven or subdivisions thereof; or
  - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA, or a provincial resources authority;
- (d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

## APPENDIX B: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM COASTAL AND INLAND AREAS:

### Guidelines and Procedures for Developers

#### Shell Middens

Shell middens can be defined as an accumulation of marine shell deposited by human agents rather than the result of marine activity. The shells are concentrated in a specific locality above the high-water mark and frequently contain stone tools, pottery, bone and occasionally also human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m<sup>2</sup> in extent, should be reported to an archaeologist.

#### Freshwater Mussel Middens

Freshwater mussels are found in the muddy banks of rivers and streams and were collected by people in the past as a food resource. Freshwater mussel shell middens are accumulations of mussel shell and are usually found close to rivers and streams. These shell middens frequently contain stone tools, pottery, bone, and occasionally human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m<sup>2</sup> in extent, should be reported to an archaeologist.

#### Stone Artefacts

These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

#### Fossil Bone

Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

#### Large Stone Features

They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane*. They are usually near river and mountain crossings. Their purpose and meaning is not fully understood; however, some are thought to represent burial cairns while others may have symbolic value.

#### Historical Artefacts or Features

These are easy to identify and include foundations of buildings or other construction features and items from domestic and military activities.