ARCHAEOLOGICAL IMPACT ASSESSMENT

GESTOPTEFONTEIN HILL

GESTOPTEFONTEIN 349 IO, PORTION 44

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EXECUTIVE SUMMARY

1. The purpose of the Archaeological Impact Assessment (AIA) is to evaluate the heritage value of the rock art site known as Gestoptefontein Hill in view of Wonderstone's interest in mining this outcrop on the southern Portion 44 of Gestoptefontein 349 IO.
2. A development application will be made to the South African Heritage Resources Agency (SAHRA) accompanied by this AIA. Final decisions about the granting of a destruction permit for Gestoptefontein Hill rest with the heritage authority (SAHRA) with whom this Archaeological Impact Assessment will be lodged. The express and written permission of SAHRA is required for destruction.
3. The assessment finds that Gestoptefontein Hill is a threatened remnant of one of the country's the most outstanding examples of a Khoe-San rock art tradition that involved making images and other markings in the performance of women's initiation rites.
4. It is therefore recommended that Gestoptefontein Hill be declared a Grade 1 heritage site of national significance. The site should be protected from any mining activities.
5. In the event of the South African Heritage Resources Agency (SAHRA) approving the mining of Gestoptefontein Hill, extensive mitigation and the construction and maintenance of a public display of the rock art would be required.

BACKGROUND INFORMATION ON THE PROJECT

This archaeological impact assessment (AIA) was carried out because Wonderstone Limited wishes to mine an outcrop of wonderstone on which there is a substantial rock art site known as Gestoptefontein Hill. The company is a wholly owned subsidiary of the African Mining and Trust Company, which is part of Assore Limited, a mining holding company with its head office in Johannesburg. Wonderstone Limited is the holder of mineral rights to Portion 44 of Gestoptefontein 349 IO, Magisterial District Lichtenburg, North West Province, licence no. ML1/1997, for the mining of wonderstone (pyrophyllite).

Wonderstone is a particularly useful, local form of pyrophyllite--an aluminasilicate "fine-grained, sedimentary rock, uniform in texture and composition" derived from volcanic tuff (MWP: 2[183]). It is resistant to weathering and corrosion, and has superior workability and strength (MWP: 2-3[183-184]). Wonderstone Limited supplies two distinct markets. Synthetic diamond manufacturing is their oldest market and wonderstone is in demand for its "exceptional thermal and electrical properties" (MWP: 5[186]). The second, more recent market is in the use of wonderstone in abrasive wear and corrosion protection ceramics used in a wide variety of areas (MWP: 6[187]).

Mining wonderstone involves bench mining, an opencast method that requires a hydraulic hammer, two articulated dump trucks, a bulldozer and an excavator. Typically, 80% of the monthly tonnage of wonderstone mined goes to the waste dump (MWP: 8[189]) because it contains "seams, white spots, cracks and red marks" (MWP: 9[190]) which make it unsuitable for the traditional synthetic diamond manufacturing market. It is not discarded, however, but adds to the stockpile available for future processing. The remaining 20% of the wonderstone is processed in the main plant.

The company envisages mining the ore resource on the southern part of Portion 44, which is valued at R180 million (excluding costs), over ten years (Barnard Van Loggernberg, General Manager Wonderstone Group, pers. comm. 1/12/2015). Alternative options for mining here were considered, but rejected:

Continue with current open pit mining (Gestoptefontein Mountain), but operations are now very close to the water table with consequent increased risks and costs. In addition, wonderstone at this level is much darker than the light coloured material preferred by certain clients;

Mine the area north west of current operation, but mining cannot proceed for long because of the shallow water table in the area;

Mine Driekuil Hill, but the above surface ore resource is small and sub surface mining is more costly. Additional costs are involved with the use and supply of water to the operation and transport of mined material to the processing plant.

Wonderstone Limited employs 93 people and the planned mining of the ore resource is expected to provide employment to these employees for the 10-year period envisaged but it will not provide additional employment (Barnard Van Loggernberg, General Manager Wonderstone Group, pers. comm. 1/12/2015).

BACKGROUND TO THE ARCHAEOLOGICAL HISTORY AND OTHER RELEVANT HERITAGE COMPONENTS

Gestoptefontein Hill, the site which Wonderstone wants to mine, is one of 13 wonderstone outcrops on the farms Gestoptefontein 349 IO and Driekuil 280 IP that have been marked

in various ways (i.e. engraved, rubbed, hammered and cut) by Khoe-San and other groups of people (Hübner 1871; Želizko 1925; Wilman 1933; Van Riet Lowe 1937, 1945; Battiss 1948 130-131; Fock & Fock 1984: 115-121, plates 131-133; Hollmann 2007, 2011, 2013, 2014a,b; Hollmann & Burrett 2009) over an unknown, but probably considerable (2000 years) length of time. These outcrops are known collectively as the Gestoptefontein Driekuil Complex (GDC) (Hollmann 2011, 2013). Each GDC site is located within 100-2500 m of its neighbour and the outcrops total about 15 km in length (Hollmann 2007: 125). Gestoptefontein Hill is especially renowned for its engravings (e.g. Wilman 1933; Fock & Fock 1984). Over 130 years ago, Hübner (1871) described both Gestoptefontein Hill and Gestoptefontein Mountain, an adjacent outcrop that has subsequently been totally destroyed by mining activities especially since the 1980s:

Coming closer one discovers a few smaller hills which together with the big hill form a small chain, extending from north to south. They all consist of a strongly tilted slate, which falls to the west, with outcrops of smooth surfaces on the western slope. On nearly all the slate outcrops one can see carvings…

Hübner 1871: 51-53, translated from German by N. Mössmer

Some memories of the significance of the Hill may still remain: Hübner (1871) mentions that the place (i.e. Gestoptefontein Hill and Gestoptefontein Mountain, what Holub called the *Doppelhügel* [Kandert 1998]) was called *Klochopitzana* by local people. He wondered:

Did the mountain possess a certain distinction as its name Head of Quagga suggests?...The carvings may have originated during great gatherings of people which brought together all the tribes in the vicinity.

The phrase *Klochopitzana* is Tswana and is now written *tlogo pitsana*. It means "head of horse/quagga". Oral tradition links the name to beliefs about a Water Snake (with the head of a horse) believed to live on Gestoptefontein Hill (Hollmann 2007: 127). The first white farmers in the area, who arrived in the 1840s, found human skeletons on another wonderstone outcrop on Driekuil. These were said to be skeletons of 'Bushmen' who had fled there in the belief that they would be invisible to their pursuers (De Jager 2008: 208). These stories demonstrate that for at least a century people have attributed special qualities to the wonderstone outcrops and could also explain in part why all of the wonderstone outcrops have been marked.

In 1884, Dr Emil Holub sketched some of the Gestoptefontein rock art and removed 140 pieces of rock art (Želizko 1925: 13-14). He donated these to the emperor of the Austro-Hungarian Empire. These engravings are held by various museums in Europe, chiefly the Kunshistorisches Museum in Vienna (Austria), and the Náprstek Museum in Prague (Czech Republic). A book that features these removed pieces was published (Želizko 1925). Kandert (1998) has published a catalogue of material (including rock art) that Holub collected.

More pieces of rock art have been removed subsequently by the Klerksdorp Museum (in 1974 according to the accession records of the museum [Bert Gaffen, Klerksdorp Museum, pers comm]) and also by archaeologists employed by the University of the Witwatersrand. It seems very likely that other unknown people removed engraved stones from Gestoptefontein Hill, quite apart from rock art that was destroyed by quarrying wonderstone.

Local craftspeople used wonderstone to manufacture headstones, vases and candlesticks, as well as paving stones and window ledges. In the early 20th century one of the owners of Gestoptefontein hired out the right to mine wonderstone. Makeshift huts, some equipped with lathes, were erected on Gestoptefontein Hill and products were made on site (Pieter de Jager pers. comm. 2014, see Hollmann 2014b). Every wonderstone outcrop has at

least one small-scale quarry. It is not possible to determine how much rock art has been destroyed in this way, but it is likely that the rock art was on the largest and biggest surfaces, which were often selected for quarrying.

With the advent of large-scale mining, first by wire cutting, then with hydraulic hammers, excavators and trucks, the pace of mining increased considerably. Comparison of a photograph published in 1937, with one published in 1984 (Fock & Fock 1984: fig 131.3), and one taken in 2009, show that most of Gestoptefontein Mountain has been destroyed. This was the largest of the wonderstone outcrops, variously estimated at just under 55 m high (Nel et al 1936: 6) to "below 80 m" (Želizko 1925: 13). Based on measurements taken on Google Earth I estimate that it could have been about 540 m long and 260 m wide. The outline of the mountain used to dominate the skyline and the miners in their red helmets could be seen moving around on the top (J. Ramathalesa pers. comm. 19/05/2009). During the Anglo-Boer War the British used it as an observation post while pursuing General De La Rey's Boer forces in the area (Hollmann 2014: 12-13).

Although there are no stones in any of the collections that are positively identified as originating from Gestoptefontein Mountain it seems that there was rock art there. Rock art researchers Gerhard and Dora Fock imply this in the caption to a photograph that identifies Gestoptefontein Mountain as a "koppie with engravings… " (Fock & Fock 1984: fig 131.3). They state "the main part of the northern hill [i.e. Gestoptefontein Mountain] where most of the engravings were found has been mined" (Fock & Fock 1984: 117). Past workers at the mine have confirmed that they removed and discarded engravings in the course of their work. The destruction of this site, apparently with no documentation, is an archaeological tragedy.

As early as the 1940s, people were already voicing their concern about the destruction and removal of art from Gestoptefontein Mountain and Gestoptefontein Hill: South African artist Walter Battiss commented "This is a ruined site, ruined by robbers and vandals" (1948: 57).

Development, both legal and illegal, has continued. In 2006 Wonderstone Limited was granted permission to destroy the rock art site on the wonderstone outcrop called Driekuil Hill in order to investigate the suitability of the underlying deposit of wonderstone (SAHRA permit 80/05/04/008/51). Mitigation included the removal of a 100 numbered pieces of rock art and their distribution between a site museum on Wonderstone property, the Klerksdorp Museum, and the Rock Art Research Institute of Wits University, Johannesburg. The above ground part of the outcrop was removed but it was decided by Wonderstone management not to proceed with mining. Most recently, in 2014, employees of Sino Rock, without a permit, dug a large pit of approximately 100 m^2 and about 2 m at its deepest point within the legally prescribed 10 m exclusion zone of the rock art site Boschpoort Road South (Hollmann 2015, SAHRA ref NW30/5/1/1/2/2401PR), thus contravening the National Heritage Resources Act. Fortunately no rock art was damaged.

Archaeological research on these wonderstone outcrops has been carried out sporadically since the 1930s when Maria Wilman of the McGregor Museum (Kimberley) recognised the unique and interesting features of Gestoptefontein (Wilman 1933). Van Riet Lowe visited the site and sketched some of the rock art (1937, 1945). Huffman and Steele reported on the hill (1995) and drew a rough sketch map on which the location of certain of the engraved rocks was noted. In the past decade extensive research has been carried out on the wonderstone outcrops on both Gestoptefontein and Driekuil (Hollmann 2005, 2006, 2007, 2011, 2013, 2014a,b).

An impact assessment was carried out on Driekuil Hill (Hollmann 2005), as well as mitigation, in the form of photographic documentation, tracings and removals (Hollmann 2006) before the site was legally destroyed.

Gestoptefontein Hill was extensively surveyed in several bouts of fieldwork from 2006 to the end of 2009 (see the following section of this report for details). The engravings were also mapped in co-operation with Wonderstone. A detailed study of the engravings and other markings on the wonderstone outcrops on the Gestoptefontein and Driekuil sites has been carried out (Hollmann 2011).

Several articles on the wonderstone outcrops have subsequently been published (Hollmann 2007, 2013, 2014a,b; Hollmann & Burrett 2009). The engravings and other features of Gestoptefontein Hill are a prominent and important component of these articles. Gestoptefontein Hill is the richest of the remaining engraved wonderstone outcrops both in terms of sheer number of engravings and, crucially, in terms of the complexity and sophistication of the engravings.

DESCRIPTION OF THE PROPERTY OR AFFECTED ENVIRONMENT, ITS SETTING AND HERITAGE RESOURCES

Gestoptefontein Hill is located on the southern part of Portion 44 of Gestoptefontein 349 IO, in the midst of mining activity. North of the hill is the powder plant, south of the hill are the mine offices and processing area and east of the hill a road and the open mining activities on what remains of Gestoptefontein Mountain. The rock art site is enclosed by white-painted iron drums but at the foot of the western slope the barrels straddle the engravings and pose a danger to the rock art (Appendix B).

The engravings and other rock markings on Gestoptefontein Hill, numbering in the thousands, were systematically surveyed and photographed during fieldwork carried out between 2006 and 2009 (see Appendices A & B in this report). The rock art on Gestoptefontein Hill covers an area of approximately 0,89 ha (8900 m^2). The outcrop is about 220 m long and 70 m wide. The survey was conducted by laying out 10 m by 10 m squares (100 m^2) over the entire hill, making sure that all engraved and marked parts of the hill were covered by grids. A total of 89 squares were laid out. Each 10 m by 10 m square was further subdivided into four 25 m^2 quadrants labelled respectively NE (northeast), SE (southeast), SW (southwest) and NW (northwest). Each quadrant was thoroughly searched for engravings and other markings including scratchings, grooves and pecked areas. Measurements were made of selected rock art, some were sketched and all the rock art in each quadrant was photographed.

DESCRIPTION OF THE ROCK ART OF GESTOPTEFONTEIN HILL

Wonderstone is soft and easy to mark (it scores 1-1,5 on Moh's scale of hardness [Astrup & Horn 1998: 599]) and this property has made it possible for people to mark the rocks extensively. The rock art on Gestoptefontein Hill (and on the other wonderstone outcrops, albeit on a smaller scale) comprises two main categories, namely referential images and gestural markings. Referential images are depictions of animals (including anthropomorphs), decorative designs, depictions of clothing and ornaments and decorations. Gestural markings are made in the process of interacting with the rock by cutting, hammering and rubbing the rock, activities that leave characteristic and repeated marks.

Gestoptefontein Hill has many large and spectacular engraved and marked surfaces (Appendix B). The rock art of Gestoptefontein Hill is the most numerous and complex of all the rock art sites on the wonderstone outcrops of Gestoptefontein and Driekuil.

Rock art removed from Gestoptefontein Hill has been accessioned by several European museums, as well as Rock Art Research Institute, University of the Witwatersrand and Klerksdorp Municipal Museum. Digital imagery of the rock art from Driekuil Hill and Gestoptefontein Hill is in the possession of the author. This material is to be lodged with the Southern African Rock Art Digital Archive (SARADA) and South African Heritage Resources Information System (SAHRIS) that is maintained by the South African Heritage Resources Agency (SAHRA).

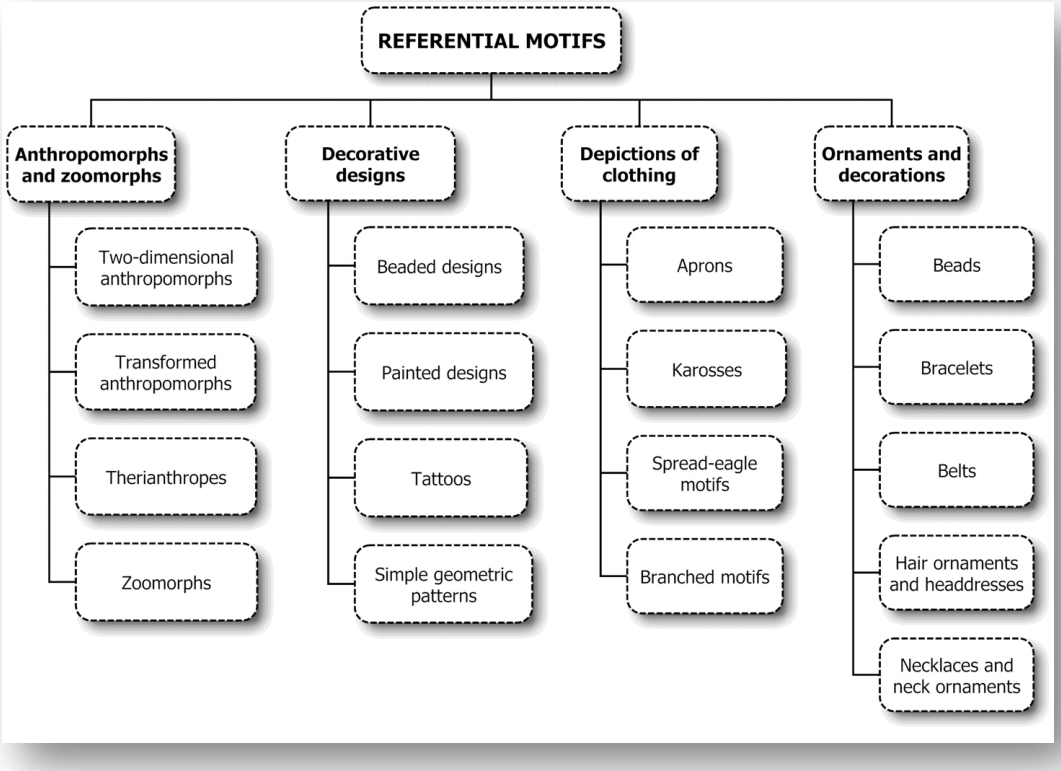

Figure 1. Categories of referential art--i.e. engravings of animals, decorative designs, clothing, ornaments and decoration.

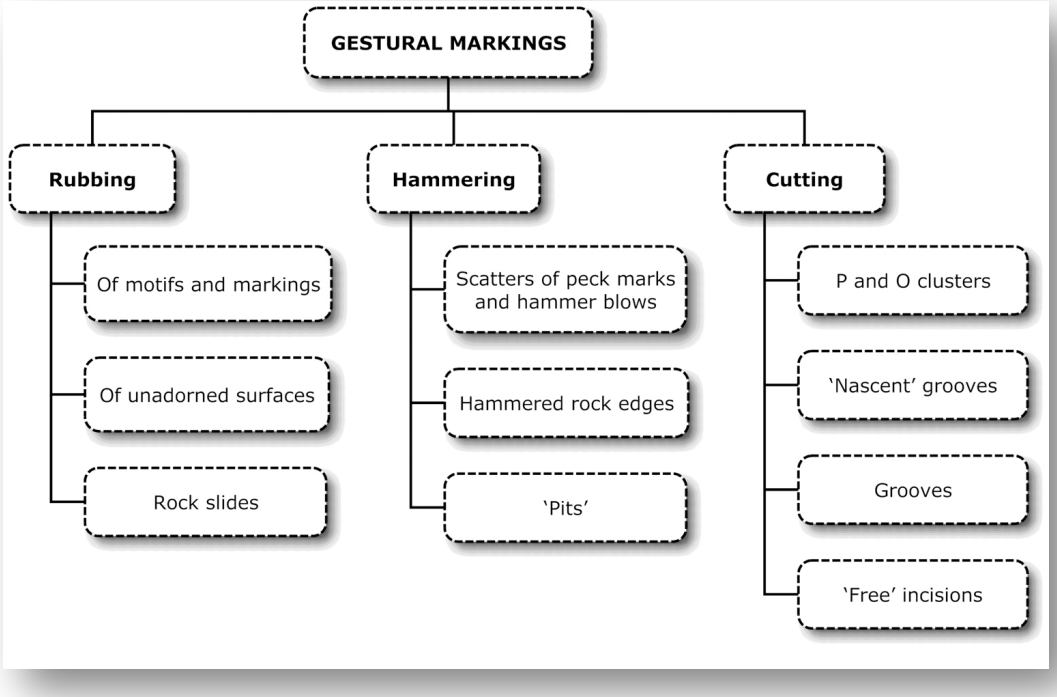

Figure 2. categories of gestural art, i.e. marks made on the rock as a 'by-product' of physical actions carried out on the rock (rubbing, hammering and cutting the rock).

RECOMMENDED GRADING OF THE SITE

Although rating a site is the responsibility of the South African Heritage Resources Agency, the specialist compiling the AIA is required by SAHRA to motivate for a Field Rating. There are seven possible ratings:

a. National: This site is considered to be of Field Rating/Grade I;

b. Provincial: This site is considered to be of Field Rating/Grade II;

c. Local: this site is of Field Rating/Grade IIIA significance. The site should be retained as a heritage register site (High significance) and so mitigation as part of the development process is not advised;

d. Local: this site is of Field Rating/Grade IIIB significance. It could be mitigated and (part) retained as a heritage register site (High significance);

e. 'General' Protection A (Field Rating IV A): this site should be mitigated before destruction (usually High/Medium significance);

f. 'General' Protection B (Field Rating IV B): this site should be recorded before destruction (usually Medium significance);

g. 'General' Protection C (Field Rating IV C): this site has been sufficiently recorded (in the Phase 1). It requires no further recording before destruction (usually Low significance).

In view of the rich and complex nature of the rock art on Gestoptefontein Hill as well as the great quantity of the rock art and *despite* the numerous removals over more than a hundred years, the site should be nominated as being of **national significance**, i.e. as a Grade 1 site.

Gestoptefontein Hill is equal in significance to Driekopseiland on the Riet River in the Northern Cape (Morris 2002, 2010). The significance of the hill must be seen in the light of the fact that it has by far the best and most numerous engravings and other markings and that the other wonderstone outcrops have been impacted on by quarrying.

STATEMENT OF SIGNIFICANCE (HERITAGE VALUE)

Gestoptefontein Hill is a highly threatened remnant of an ancient ceremonial centre repeatedly visited by Khoe-San peoples over the past 2000 years. Engravings of aprons, headbands, ornaments and designs and many other objects, are linked to women's initiation ceremonies and the power of the Water Snake in Khoe-San cosmology. Gestoptefontein Hill is the largest and richest of all the remaining engraving sites that occur on the wonderstone outcrops. No other wonderstone outcrop comes close to the number and variety of rock markings. Gestoptefontein Hill has yielded information that has contributed and will continue to contribute to our understanding of Khoe-San history. The large, richly engraved slabs of rock and the emphasis on items of clothing, ornaments, decorations and designs are evidence of high degree of creative achievement by Khoe-San artists.

RECOMMENDATIONS

The recommendation of this archaeological impact assessment is that Gestoptefontein Hill should be protected entirely from mining and declared a national heritage site. The mining of wonderstone involves the stripping off of the surface layer of rocks, after which blocks of

wonderstone are quarried using a hydraulic hammer, then loaded into a truck and carted away. Mining Gestoptefontein entails the total destruction of the archaeological site.

There is no possible alternative site for mining, according to the information provided by Wonderstone management. The company desires a new source of light-coloured wonderstone for its clients and Gestoptefontein Hill is their choice.

The number, size and complexity of the engraved and marked surfaces mean that any mitigation will be costly and protracted. The following mitigation measures, amongst others, would be required:

- Full photographic documentation of the rock art using a high resolution digital camera and in Raw format using professional grade lenses and tripod. Every surface would have to be photographed with wide angle, medium range and close up views in order to record the rock art;
- Funds would be required to process these images and to integrate them into the Southern African Rock Art Digital Archive (SARADA) that is based at the Rock Art Research Institute at the University of the Witwatersrand;
- Tracing of certain surfaces must also be considered in order to clarify details that may not readily be detected in the digital images;
- Laser scanning of all the surfaces on the hill by a suitably qualified team of surveyors would be essential, in order to record the relative position and orientation of the rock art precisely and accurately;
- A suitable, climate-controlled building (preferably within North West province) to which the rock art could be removed and kept under suitable environmental conditions in perpetuity would be required;
- Funds would be required to enable the removal of all of the rock art by suitably qualified experts. It would be crucial to maintain the physical integrity of the rock art, which is on large slabs of wonderstone as well as on very fractured rock surfaces. Measures would therefore need to be taken to keep these surfaces intact. Such measures would require specialised expertise;
- Funds would be required to erect suitable structures to create and maintain ideal conditions for the rock art so that it would be protected in perpetuity from degradation.
- Funds would be required to display the rock art to the public. These funds would be used to create and maintain interpretive material for the rock art. These would include real and virtual displays.

CONCLUSIONS

There is always tension between the development of resources and the conservation of cultural heritage. The benefits of development need to be weighed against the benefits of retaining cultural heritage. In the case of Gestoptefontein Hill the benefits of mining and its social and economic benefits to shareholders, employees and the community need to be reconciled with the presence of a unique and substantial body of rock art and its significance in the country's history.

Gestoptefontein Hill is one of the last remnants of an ancient Khoe-San ceremonial centre that was probably used over the past 2000 years. The other GDC sites are smaller and have been damaged by quarrying activities. The rock art on Gestoptefontein Hill is part of South Africa's Khoe-San heritage and varied and covers a wide area, much of it on large slabs of wonderstone. The site is valuable source of data about ancient Khoe-San culture

and history. Mitigation will be costly and difficult and sacrifices the context of the rock art, as can be seen with collections of rock art removed the GDC over the past two centuries. Given the gross neglect of this important Khoe-San heritage in the past, the opportunity to preserve one of the last pieces of this ancient ceremonial centre should now be grasped.

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