ARCHAEOLOGICAL/HERITAGE IMPACT ASSESSMENT REPORT FOR THE EXPANSION OF THE CURRENT GRANITE MINE SWART MODDER, NORTHERN CAPE PROVINCE.

SAHRIS CASE: 12073
(Previous case 11721)

DMR CASE:
NC 30/5/1/2/2/10132 MR

(Assessment conducted under Section 38 (8) of the
National Heritage Resources Act (No. 25 of 1999) as part of a S&EIR Assessment)

Prepared On behalf of

Sizisa Ukhanyo 830 Trading cc

December 2017

Prepared by

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1. INTRODUCTION 4
1.1 Scope and purpose of report 4
1.2 Project details 5
1.3 Season, date and duration of site investigation 5
1.4 Background 6
2. METHODOLOGY 6
2.1 Details of base data 6
2.2 Field assessment procedure 6
3. OBSERVATIONS 7
3.1 Identified sensitivities and heritage resources 7
3.1.1 Black 7
3.1.2 Cape Autumn 8
3.1.3 Desert Flame 9
3.1.4 Ocean Blue 11
3.1.5 Pink 13
3.1.6 Rainbow 15
3.1.7 Red One 16
3.1.8 Red Two 17
3.1.9 Red Three 18
3.2 Existing impacts and related observations 21
4. CONCLUSIONS 22
4.1 Acceptability of the proposed activity with respect to heritage resources 22
5. RECOMMENDATIONS 22
6. REFERENCES 22
APPENDIX 1: SPECIALIST CV 23
APPENDIX 2: SPECIALIST DECLARATION 28
APPENDIX 3: GRADING CATEGORIES 29
APPENDIX 4: PALAEONTOLOGICAL STUDY LETTER 30

Figure 1: Map detailing Core Area One in a local context. The town of Pofadder can be seen to the south west and Kakamas to the east. 4
Figure 2: The location of the granite mine and farm portions. 4
Figure 3: A detail of the granite mine Core Area One (black polygon), showing the existing, (red) and proposed quarries, (green). Stockpiles are coloured yellow. 5
Figure 4: GPS recorded tracks and waypoints of heritage resources within the vicinity of active and prospecting quarries in Core Area One. 7
Figure 5: The location and extent of Desert Flame quarry (red) in relation to the archaeological observations mentioned above. 10
Figure 6: The location and extent of Ocean Blue (green) quarry in relation to the archaeological observations mentioned above. 12
Figure 7: The location and extent of Pink quarry (red), and stock pile at Pink Pump (yellow), in relation to the archaeological observations mentioned above. Note the possible grave at D010 (circled in red). 14

Figure 8: Red Two quarry and stockpile, illustrating its context and extent in relation to archaeological observations. 18
Figure 9: Red Three quarry, illustrating it location and extent in relation to the archaeological observations. 19

Plate 1: Black quarry, illustrating the current activity and landscape context. 8
Plate 2: Black quarry showing close up of the current activity. 8
Plate 3: Cape Autumn quarry, illustrating the current activity and landscape. 9
Plate 4: Cape Autumn quarry, illustrating wider landscape. 9
Plate 5: Desert Flame showing quarry area. 10
Plate 6: D004: quartz scatter on outwash 11
Plate 7: JR003: scatter on lower granite boulder (book scale gradations in cm) 11
Plate 9: JR004: Broken double groove lower grindstone.....12
Plate 10: JR004: Local context of LGS and quartz flakes. 13
Plate 11: A typical single grooved lower grindstone on a flat rock slab found in a small shelter (D005) 14
Plate 12: D009: Khoi pot neck and rim impressed into compacted riverbed sediment. 15
Plate 13: D010: Rectangular stone feature. 15
Plate 14: Rainbow quarry, illustrating the current extent and mining activities. 16
Plate 15: Rainbow quarry, illustrating mining activities and wider landscape. 16
Plate 16: Red One quarry, illustrating the current extent and mining activities. 17
Plate 17: Red One quarry, illustrating landscape. 17
Plate 18: Panoramic view of the area of archaeological site JR001. 18
Plate 19: The landscape of Red Three quarry. 19
Plate 20: D001 quartz artefacts. 20
Plate 21: The location and extent of previously recorded rock shelter on the road side between Core Area One and Core Area Two. 22

1. INTRODUCTION

1.1 Scope and purpose of report

ACO Associates cc has been requested by Klaas Van Zyl on behalf of Sizisa Ukhanyo Trading to prepare an archaeological scoping report pertaining to the proposed expansion of granite mining in Core Area One (**Figure 1**), which is situated on Portion 1 of the farm Lower Zwart Modder 79, Portion 2 of the farm Upper Zwart Modder 78 and the Remainder of farm Oup 80, Northern Cape Province (**Figure 2**). An archaeological survey was undertaken to assess the existing and proposed quarries and establish what heritage resources exist that may be impacted by the proposed quarrying activities.

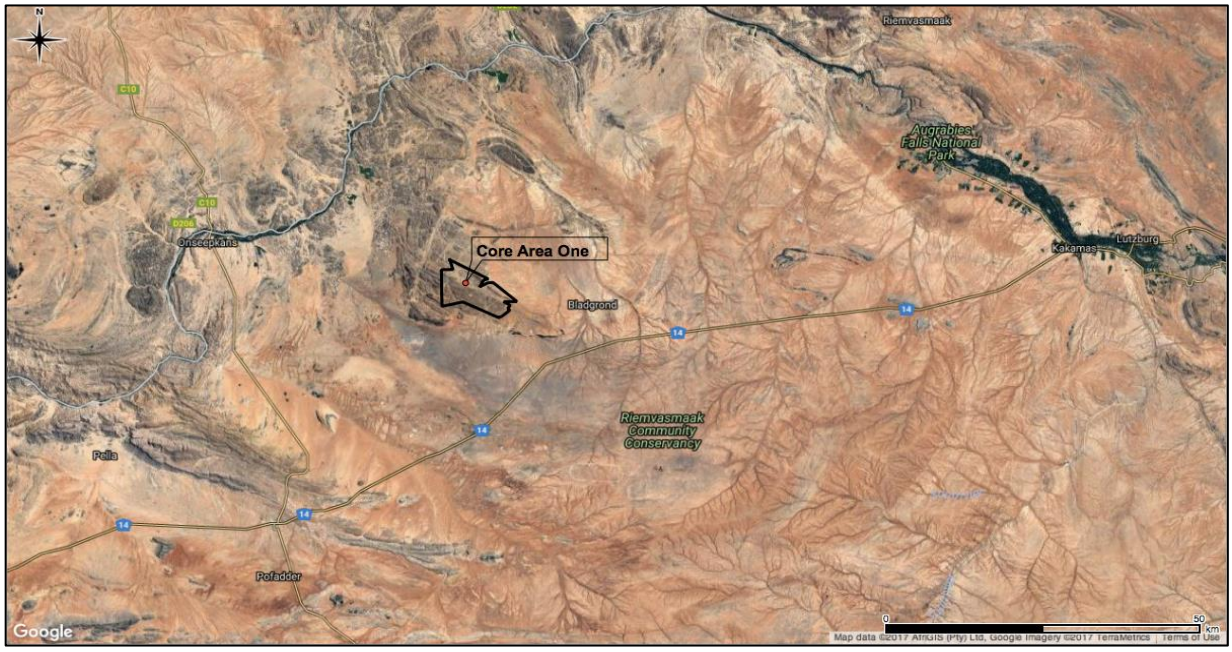

Figure 1: Map detailing Core Area One in a local context. The town of Pofadder can be seen to the south west and Kakamas to the east.

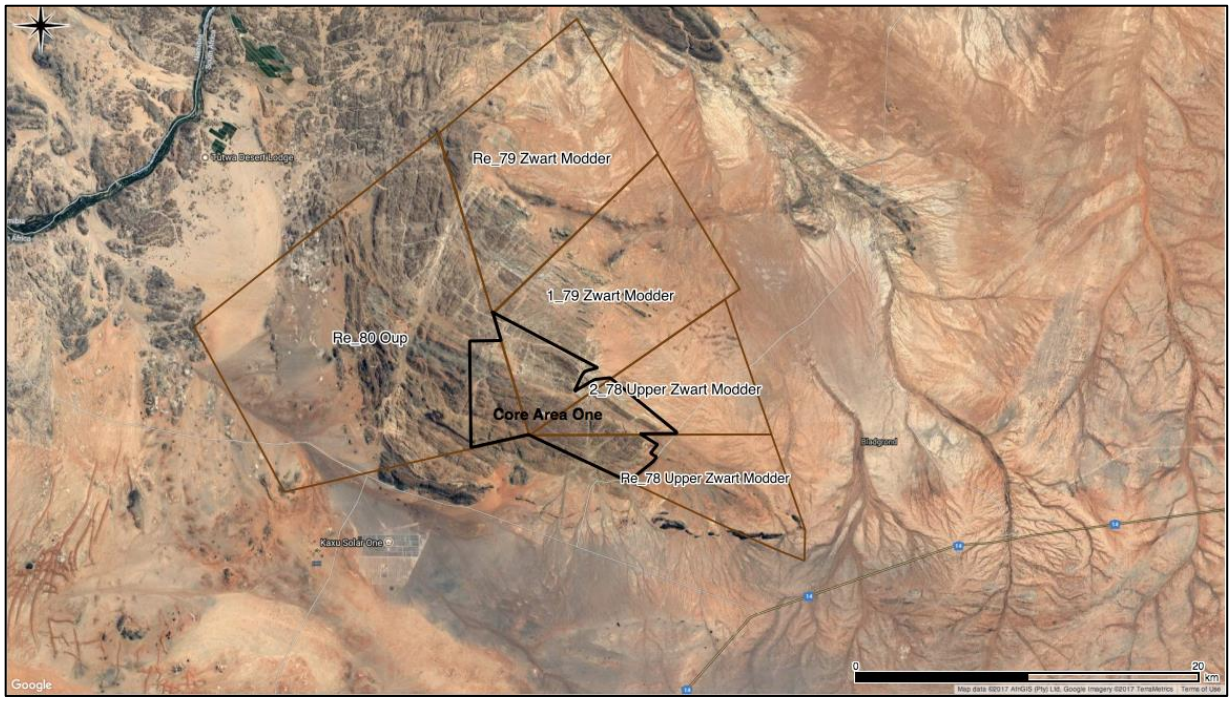

Figure 2: The location of the granite mine and farm portions.

1.2 Project details

The maximum extent of the granite mining zone is referred to as Core Area One and consists of nine quarries, of which six are active and looking to expand, and three are proposed, new quarries. The locations of the current and proposed quarries are shown in Table 1 and on **Figure 3** below.

Table 1: Granite quarries in Core Area 1

Quarry name	Lat	Lon	Status
Black	S 28.798460°	E 19.688110°	Active
Cape Autumn	S 28.791200°	E 19.662160°	Active
Desert Flame	S 28.789130°	E 19.646340°	Active
Ocean Blue	S 28.798480°	E 19.661290°	Proposed
Pink	S 28.833930°	E 19.726010°	Active
Rainbow	S 28.782034°	E 19.651029°	Active
Red 1	S 28.821280°	E 19.676170°	Active
Red 2	S 28.829930°	E 19.683820°	Proposed
Red 3	S 28.833070°	E 19.681700°	Proposed

Note: Coordinates represent the logical centre point of each quarry.

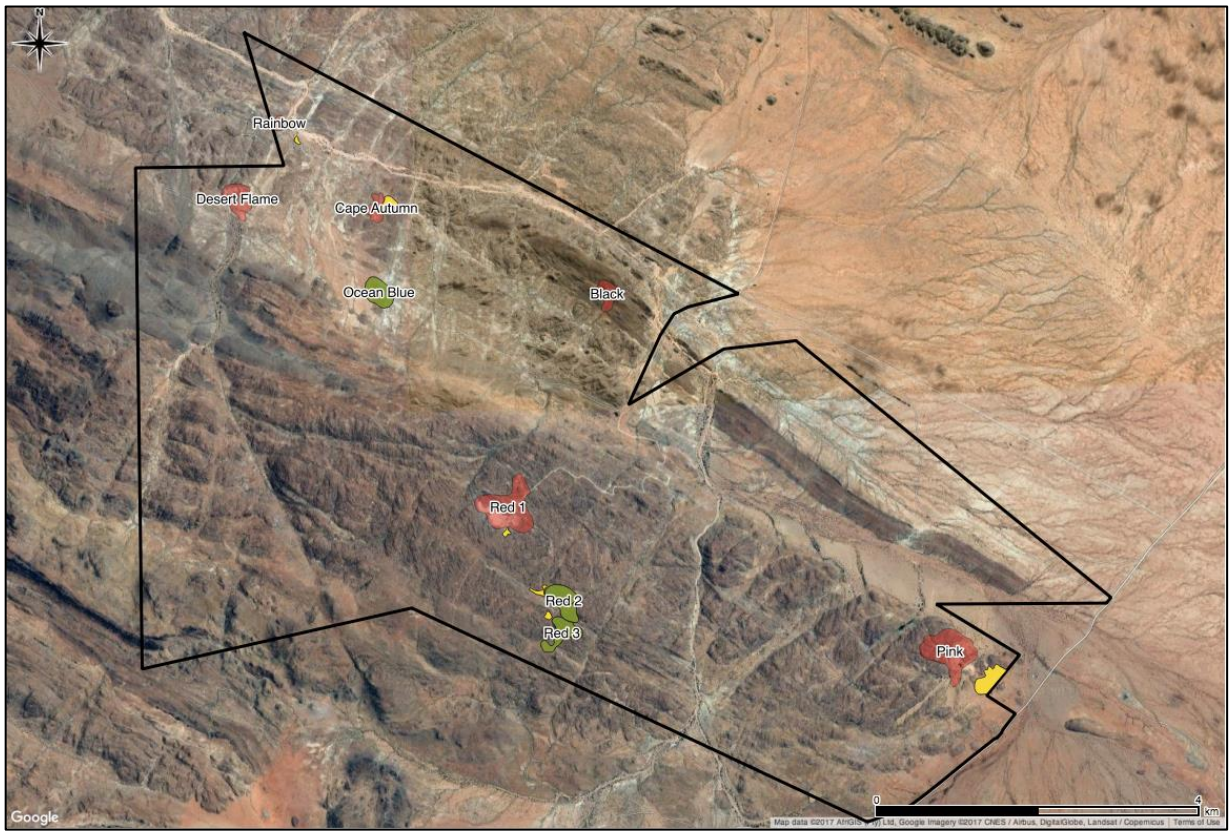

Figure 3: A detail of the granite mine Core Area One (black polygon), showing the existing, (red) and proposed quarries, (green). Stockpiles are coloured yellow.

1.3 Season, date and duration of site investigation

An archaeological scoping field survey was conducted from the 23rd to 26th October 2017. The season had no impact on the outcome of the assessment as surface visibility was good due to the rocky terrain and sparse succulent Karoo vegetation. The general area is composed of granite hills surrounded by wide open plains. The individual quarry areas were within the granite hills and were generally very rocky. In places the sandy plains extend right up to the base of the rocks, in other areas dry stream beds cut through the hills or flow past them leaving alluvial fans in places.

1.4 Background

The quarrying operations in Core Area One are carried out under cover of mining permit MP 017/2014 File reference NC30/5/1/3/2/10358MP issued to Sizisa Ukhanyo Trading 830 CC over a 5ha portion of Portion 1 of Lower Zwart Modder No 79. The prospecting, by means of bulk sampling, takes place under the following two prospecting rights:

- Prospecting right MPTRO 29/2015 File reference NC30/5/1/3/2/10610PR issued to Sizisa Ukhanyo Trading 830 CC over the Remainder of farm Lower Zwart Modder 79, a portion of Portion 1 of the farm Nous West 76, the Remainder of farm Upper Zwart Modder 78 and a portion of the Remainder of the farm Oup No 80; and
- Prospecting right MPTRO 68/2010 File reference NC30/5/1/3/2/10455PR issued to Sizisa Ukhanyo Trading 830 CC over Portion 1 of the farm Lower Zwart Modder No 79 and Portion 2 of the farm Upper Zwart Modder 78.

2. METHODOLOGY

2.1 Details of base data

A survey of available literature was carried out to assess the general heritage context of the area in which the proposed prospecting was to be undertaken. The information gained was used to inform the field survey.

The SAHRIS[1] database was queried to determine if any previous archaeological assessments of the property were available. This indicated that a previous Heritage Impact Assessment was done by Jayson Orton and Lita Webley of ACO Associates in 2012/2013, (Orton and Webley 2013). The results of that previous survey have been integrated into this report wherever pertinent, and those data used to complement the information collected during the site visit in October 2017.

A desktop palaeontological assessment of Core Area One was provided by Professor Marion Bamford, Director of the WITS Evolutionary Studies Institute for ACO Associates (see Appendix 4). Professor Bamford states that given the nature of the Little Namaqualand and Eendoorn Granite suites that predominate in Core Area One “there is no possibility of finding fossils in the affected area”. The extraction of granite and associated hard rocks will therefore not impact on any fossil heritage and no further palaeontological impact assessment is required.

2.2 Field assessment procedure

The farm access points, routes across the active and prospective quarries and other points of interest relevant to the field assessment were loaded onto handheld GPS devices to assist with accurately identifying the extent and detail of the survey area. In addition to the GPS guidance, the extent of the site was mapped on GIS and hard copy printouts of this mapping taken into the field to assist with survey position fixing.

The field assessment consisted of a combination of foot and vehicle based surveying of each active and prospective quarry to identify any archaeological resources. The GPS tracks recorded for the entirety of the survey are shown on **Figure 4**. Waypoints were entered into the GPSs at the location of any identified heritage resources, observation notes were written for the relevant findings, and photographs were taken of the resources and surrounding context and landscape.

[1] A database maintained by the South African Heritage Resources Agency containing, inter alia, information about development-led heritage projects

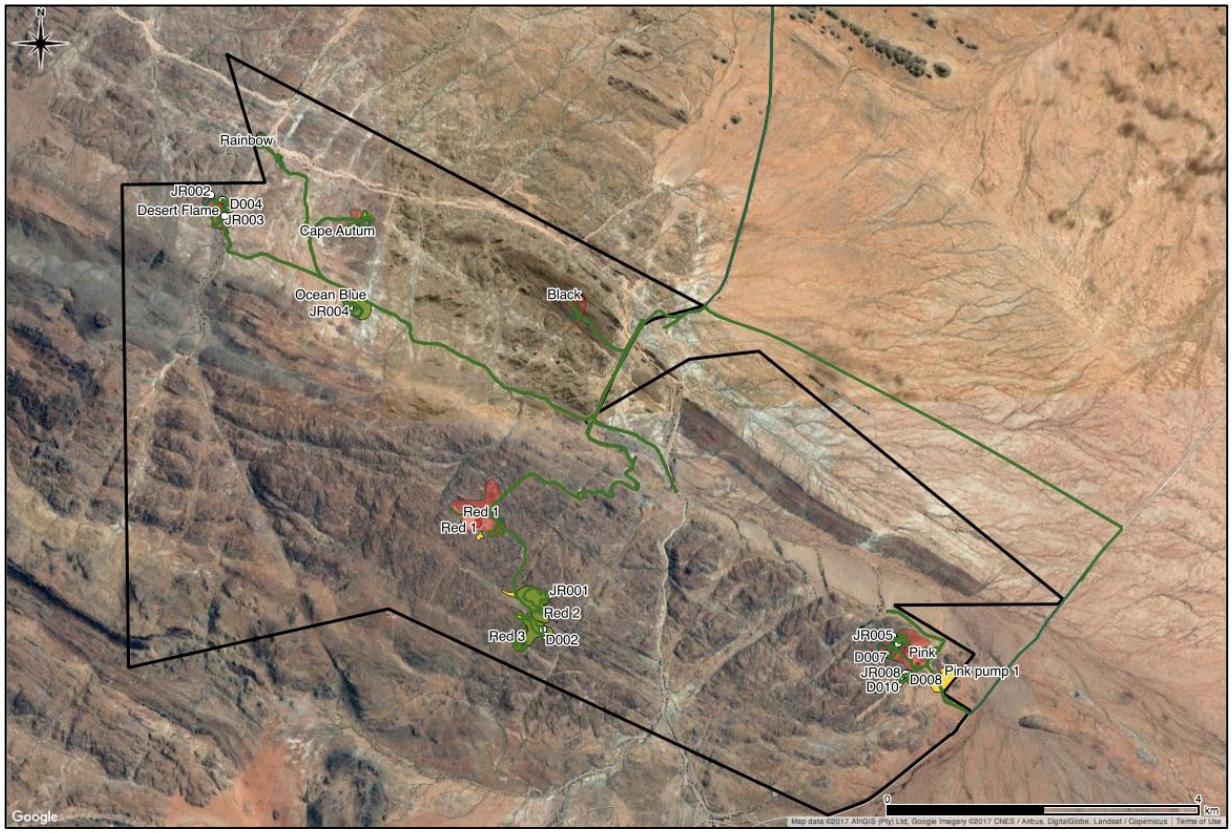

Figure 4: GPS recorded tracks and waypoints of heritage resources within the vicinity of active and prospecting quarries in Core Area One.

3. OBSERVATIONS

3.1 Identified sensitivities and heritage resources

In general, the heritage resources observed, mainly in the form or artefact scatters of Middle Stone Age (MSA) and Later Stone Age (LSA) were isolated and ephemeral. The observed resources, detailed in Table 2 and shown on **Figure 4** are described below, listed by associated active or proposed quarry.

3.1.1 Black

Centre point: S 28.798460° E 19.688110°

Black is an active quarry (**Plate 1** and **Plate 2**), which yielded two isolated quartz flakes in the area to the north of the working area. These were not recorded and are not deemed to be conservation worthy. No rock shelters were present on the rocky sloping terrain, and no further archaeological sites or material were observed. This quarry was surveyed as Area 10 in 2012 by Orton and Webley who reported no archaeological material.

Plate 1: Black quarry, illustrating the current activity and landscape context.

Plate 2: Black quarry showing close up of the current activity.

3.1.2 Cape Autumn

Centre point: S 28.791200° E 19.662160°

Cape Autumn is an existing quarry (**Plate 3** and **Plate 4**), which includes a stockpile area. The flat, sandy landscape appears to be largely disturbed as a result of surface and vegetation clearing for the stockpile area. No archaeology was observed in Cape Autumn or the stockpile area. Orton and Webley surveyed this quarry as Area 5 in 2012 and also reported no archaeological material.

Plate 3: Cape Autumn quarry, illustrating the current activity and landscape.

Plate 4: Cape Autumn quarry, illustrating wider landscape.

3.1.3 Desert Flame

Centre point: S 28.789130° E 19.646340°

Desert Flame is an existing quarry (**Figure 5** and **Plate 5**) with an associated block stockpile. The quarry did not form part of the area surveyed by Orton and Webley in 2012.

The area consists of large granite outcrops that lie opposite one another with sandy dry river bed in between. Four archaeological sites were observed here:

- D003: An ephemeral quartz artefact scatter on a relatively flat area in front of granite boulders which form a small recess. Artefacts consist of two chunks and one core, possibly MSA;
- D004: A quartz scatter of approximately 40 to 50 pieces, possibly MSA and consisting of flakes, chunks and cores, on a flat outwash fan amongst rocks on the edge of the granite boulder on the east of the quarry (see **Plate 6**);
- JR002: Six to seven flakes, chunks and cores of quartz, found across the dry river bed from D003. This material was found in a position which offers a good vantage point out over the landscape;
- JR003: a scatter of quartz artefacts consisting of flakes and cores, possibly MSA, lying at the granite boulder approximately 20 meters below JR002, and east of the stockpile (see **Plate 7**).

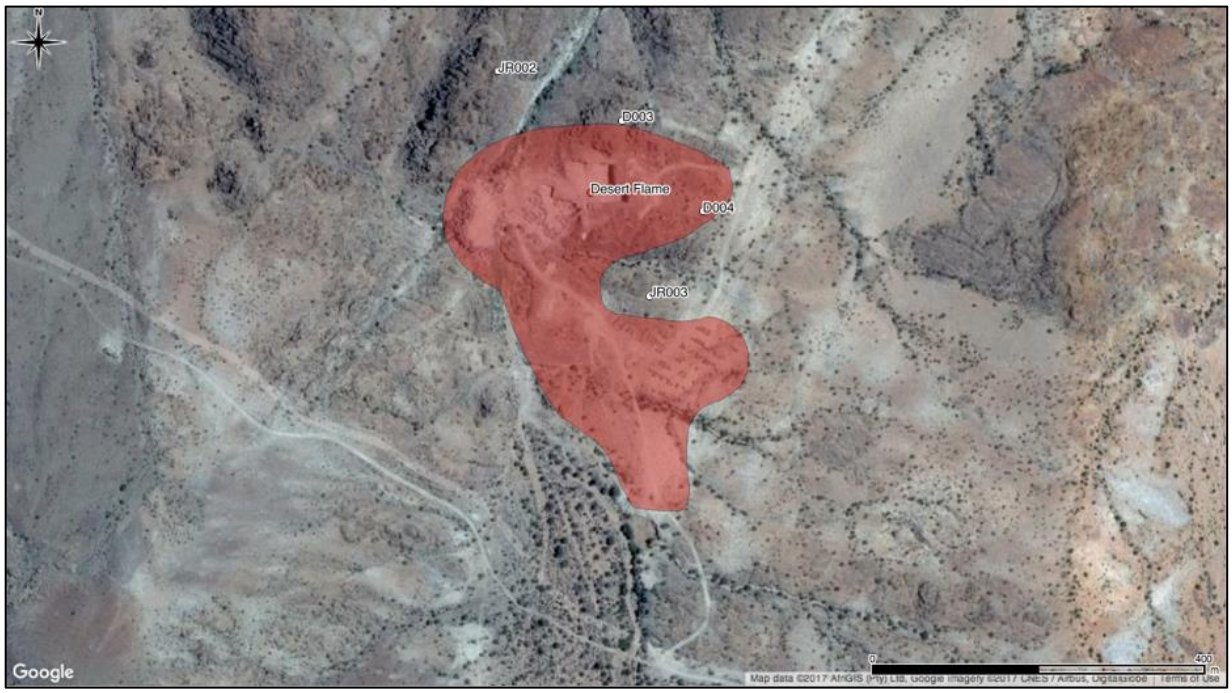

Figure 5: The location and extent of Desert Flame quarry (red) in relation to the archaeological observations mentioned above.

Plate 5: Desert Flame showing quarry area.

Plate 6: D004: quartz scatter on outwash

Plate 7: JR003: scatter on lower granite boulder (book scale gradations in cm)

3.1.4 Ocean Blue

Centre point: S 28.798480° E 19.661290°

Ocean Blue is a proposed granite quarry (**Figure 6**) with signs of prospecting on the large granite batholith. The proposed quarry did not fall within the area surveyed by Orton and Webley in 2012.

One archaeological observation was made at this proposed quarry during the 2017 survey:

- JR004: Half a double groove lower grindstone made from Cape Red Granite, and two quartz flakes, the latter possibly MSA (**Plate 8** and **Plate 9**).

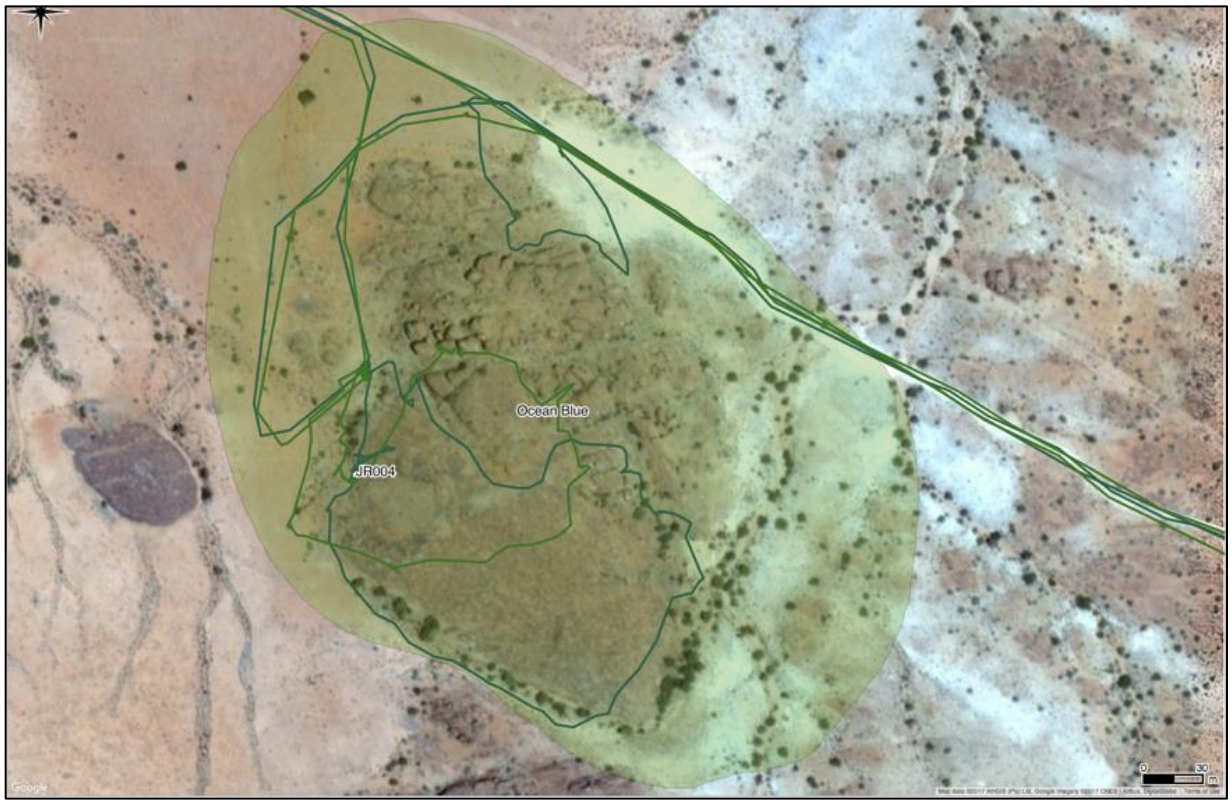

Figure 6: The location and extent of Ocean Blue (green) quarry in relation to the archaeological observations mentioned above.

Plate 8: JR004: Broken double groove lower grindstone

Plate 9: JR004: Local context of LGS and quartz flakes.

3.1.5 Pink

Centre point: S 28.833930° E 19.726010°

Pink is a large, active quarry (**Figure 7**) which includes a stockpile and office area, known as Pink "Pump". The quarry did not form part of the area surveyed by Orton and Webley in 2012.

A typical LSA archaeological occurrence was noted in the flat tributary flood plain between two river beds to the south of the quarry, including exotic lithic raw material such as chert. A total of 10 archaeological observations were made at this quarry, detailed below:

- D005: A low recess below the granite boulders with a sandy, shallow deposit. A lower grind stone was noted on the surface and a talus area contains broken ostrich egg shell (OES). One or two quartz flakes were noted on the talus area, but no obvious LSA scatter (see **Plate 10**);
- D006: A small recess with MSA quartz flakes on a rocky talus;
- D007: A small flat area with a scatter of 10 quartz flakes, some on quartz crystal, possibly LSA;
- D008: An isolated sherd of Khoi pottery in the riverbed;
- D009: A Khoi pot neck and rim impressed into solidified mud on the edge of the riverbed. Facing rim down, the pot was possibly washed down the river. The neck of the pot is decorated (see **Plate 11**);
- D010: A rectangular stone feature, in-filled with soil, possibly a grave (see **Plate 12**);
- JR005: Three isolated quartz flakes found in the riverbed;
- JR006: A banded ironstone flake, quartz crystal bladelet core, isolated Khoi pottery sherds and two quartz flakes;
- JR007: A brown chert flake, a Khoi pot sherd and OES.

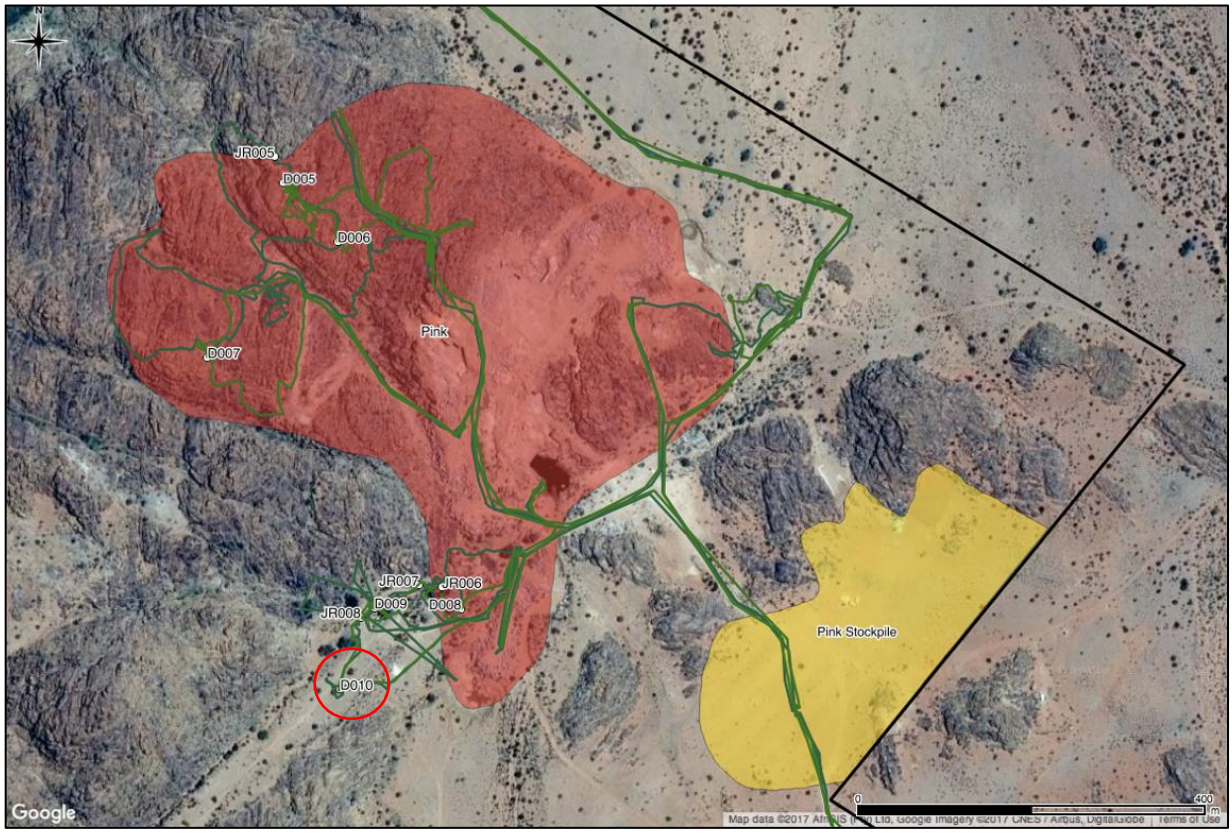

Figure 7: The location and extent of Pink quarry (red), and stock pile at Pink Pump (yellow), in relation to the archaeological observations mentioned above. Note the possible grave at D010 (circled in red).

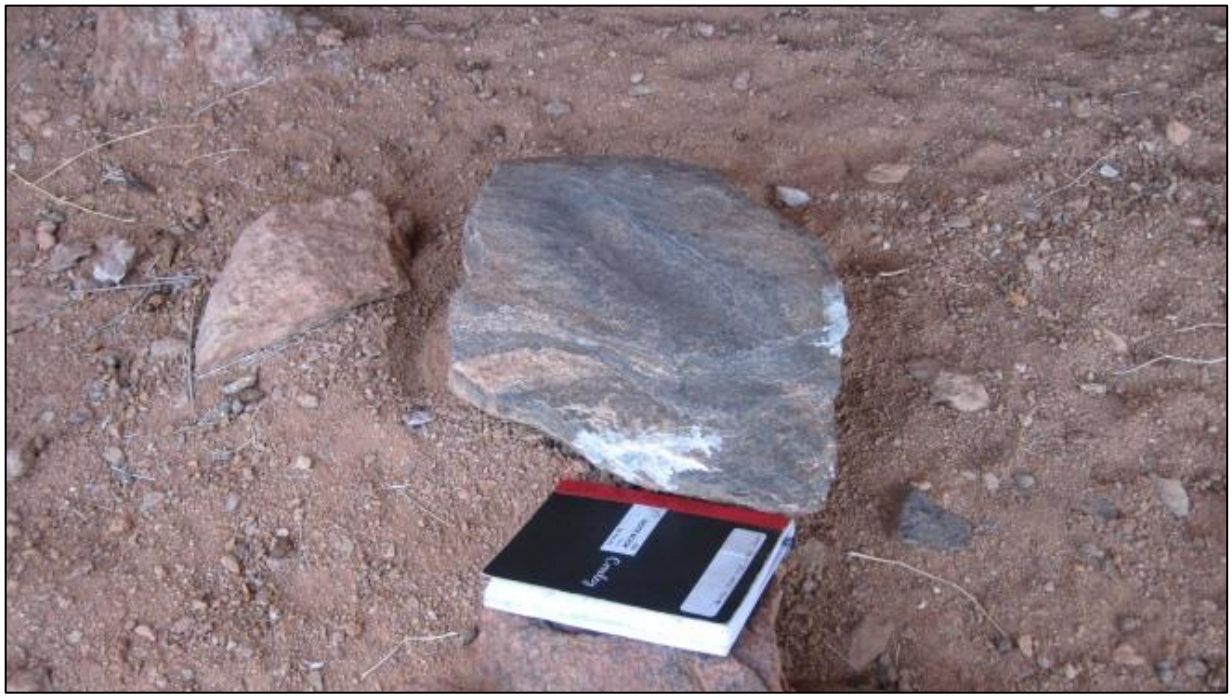

Plate 10: A typical single grooved lower grindstone on a flat rock slab found in a small shelter (D005)

Plate 11: D009: Khoi pot neck and rim impressed into compacted riverbed sediment.

Plate 12: D010: Rectangular stone feature.

3.1.6 Rainbow

Centre point: S 28.782034° E 19.651029°

Rainbow is a small, existing quarry (1.53 ha in extent) (see **Plate 13**), with considerable disturbance to the landscape caused by the clearing of surface vegetation for stockpile space (see **Plate 14**). This area includes a stockpile area containing a borehole and a reservoir made from cut granite blocks. Orton and Webley surveyed this quarry as Area 6 in 2012 and reported no archaeological material.

No archaeology was observed in this area during the 2017 survey.

Plate 13: Rainbow quarry, illustrating the current extent and mining activities.

Plate 14: Rainbow quarry, illustrating mining activities and wider landscape.

3.1.7 Red One

Centre point: S 28.821280° E 19.676170°

Red One quarry is the largest active quarry in Core Area One (22,6 ha in extent) (**Plate 15** and **Plate 16**). In 2012 Orton and Webley surveyed sections of this quarry as Area 4 and those sections that were accessible and not surveyed by them, were surveyed during the field assessment reported here.

No archaeology was observed in this area.

Plate 15: Red One quarry, illustrating the current extent and mining activities.

Plate 16: Red One quarry, illustrating landscape.

3.1.8 Red Two

Centre point: S 28.829930° E 19.683820°

Red Two is a proposed quarry containing evidence of prospecting in the form of a small triangular cutting and road construction (**Figure 8** and **Plate 17**). The landscape consists of flat sandy areas between large granite boulders. The quarry did not form part of the area surveyed by Orton and Webley in 2012.

A single archaeological observation was made in 2017:

- JR001: A flat rocky ledge containing one banded ironstone core and one broken quartz flake. Not conservation worthy.

Figure 8: Red Two quarry and stockpile, illustrating its context and extent in relation to archaeological observations.

Plate 17: Panoramic view of the area of archaeological site JR001.

3.1.9 Red Three

Centre point: S 28.833070° E 19.681700°

Red Three is a proposed quarry, similar to Red Two with exposed, rocky ledges in between large granite boulders (**Figure 9** and **Plate 18**). Some disturbance does exist in terms of land clearing and road construction. The quarry did not form part of the area surveyed by Orton and Webley in 2012.

Two archaeological observations were made in the October 2017 survey:

- D001: Four isolated quartz flakes, possibly MSA;
- D002: Three MSA quartz flakes in a small, flat, sheltered area between boulders in an outwash area (**Plate 19**).

Figure 9: Red Three quarry, illustrating it location and extent in relation to the archaeological observations.

Plate 18: The landscape of Red Three quarry.

Plate 19: D001 quartz artefacts.

Table 2: Quarries containing archaeological observations in Core Area One

Quarry	Waypoint	Lat	Lon	Description	Grading
Red 3	D001	S 28.83201	E 19.68371	Isolated quartz flake. MSA	NCW*
	D002	S 28.83265	E 19.68405	3 MSA quartz flakes in a small flat area between boulders- sheltered outwash area	NCW
Pink	D005	S 28.83283	E 19.72425	Low recess below granite boulder, sandy deposit on floor. Lower grindstone (LGS) made on granite on surface. No other stone artefacts observed. Flat talus area to east with lots of broken Ostrich Egg Shell (OES). One or two quartz flakes on flat are LSA.	IIIC
	D006	S 28.83336	E 19.72482	Small recess with a few MSA flakes on rocky talus.	IIIC
	D007	S 28.83441	E 19.72347	Small flat area with ephemeral quartz scatter, small flakes of quartz crystal, LSA.	NCW
	D008	S 28.83669	E 19.72610	Isolated Khoi pottery sherd in riverbed.	
	D009	S 28.83668	E 19.72520	Khoi pot neck and rim impressed into solidified mud on the edge of the riverbed. Rim facing down, perhaps washed down the river. Decorations on the pot.	NCW
	D010	S 28.83742	E 19.72485	Rectangular stone feature filled in with soil, possible grave (?).	IIIA
	JR005	S 28.83259	E 19.72416	3 quartz flakes.	NCW
	JR006	S 28.83649	E 19.72590	Banded ironstone flake, bladelet core, quartz crystal, 2 quartz flakes. 1 Khoi pottery sherd.	NCW
	JR007	S 28.83647	E 19.72566	Brown chert, pottery. Definite LSA presence in this area. Quartz, pottery, OES, red chert. Bladelet cores. Exotic material.	IIIC
Red 2	JR001	S 28.82845	E 19.68453	Flat rocky ledge with 1 banded ironstone core, 1 broken quartz flake.	NCW
Desert Flame	D003	S 28.78844	E 19.64668	Ephemeral quartz artefact scatter on flat area in front of small recess. 2 chunks, 1 core, MSA.	NCW
	D004	S 28.78931	E 19.64756	Flat outwash fan amongst rocks on the edge of a koppie. Quartz scatter (MSA) Flakes, chunks and cores, about 40-50 pieces.	IIIC
	JR002	S 28.78798	E 19.64534	6-7 small quartz flakes, chunks and cores. Good sense of space and outlook over the landscape.	NCW
	JR003	S 28.79011	E 19.64698	Small scatter of quartz flakes and cores.	NCW
Ocean Blue	JR004	S 28.79937	E 19.66135	Half a double groove grindstone and two quartz flakes (MSA). Grindstone made from Cape Red Granite.	IIIC

*** Note:** NCW – Not conservation worthy. A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate (see Appendix 3 for other grading categories).

3.2 Existing impacts and related observations

The archaeological material identified in Core Area One during the 2017 survey is of low signficance.

The exception is D010 which is a possible grave. This site is, however, located outside of the proposed expansion area at Pink quarry and can be avoided during mining operations and related activities.

Located on the road between Core Areas One and Two/Three, is a rock shelter previously described and recorded by Orton and Webley in 2012 (LZM2012/001). This site is a useful comparison to what was observed on the landscape during the survey of Core Area One. In contrast to the ephemeral archaeology seen around the quarries, this rock shelter contains a dense accumulation of predominantly LSA stone artefacts, bone and ostrich eggshell, both inside the shelter and extending

outwards on the talus slope (**Plate 20**). Nothing of that scale or density was observed at any of the other active or proposed quarry sites of Core Area One.

Plate 20: The location and extent of previously recorded rock shelter on the road side between Core Area One and Core Area Two.

4. CONCLUSIONS

4.1 Acceptability of the proposed activity with respect to heritage resources

The archaeological resources identified during the field assessment provide evidence of a human presence in this area going back to the Middle Stone Age but the ephemeral and scattered nature of this material means that its heritage significance is low.

The geology of Core Area One means that there is no possibility of finding fossils in the affected area.

It is our assessment, therefore, that the current and proposed activities in Core Area One may be authorised.

5. RECOMMENDATIONS

The following recommendations are made:

- D010, the possible grave adjacent to Pink quarry is protected by the National Heritage Resources Act (Act 25 of 1999) and can and should be avoided during mining operations and related activities (**Figure 7**). Should the need to remove the grave ever arise then a full public participation process will be required under the terms of the NHRA. This can be a time-consuming process and it is thus certainly best to avoid all graves completely;
- No further archaeological studies or mitigation is required for the areas examined for this report; and
- No further palaeontological studies or mitigation is required for Core Area One.
- If the areas examined should change or new areas be added, they must be assessed for heritage resources

6. REFERENCES

Orton, J. and Webley, L. 2012. *Heritage Impact Assessment for the proposed granite prospecting near Pofadder, Northern Cape*. Unpublished report prepared for Sizisa Ukhanyo Trading 830 cc. ACO Associates cc. Diep River

APPENDIX 1: SPECIALIST CV

PERSONAL DETAILS

Name:	Halkett, David John
Home Address:	6 Overton Court 151 High Level Road Green Point Cape Town 8005
Telephone:	073 141 8606
Previous work Address:	**Archaeology Contracts Office** Department of Archaeology, University of Cape Town, Private Bag Rondebosch, 7701
Current work address:	**ACO Associates cc** Unit D17, Prime Park, 21 Mocke Road, Diep River 7800
Telephone (w):	(021) 706 4104
Fax to e-mail (w):	086 603 7195

Date of Birth:	23.07.1958
Marital Status:	Married
Nationality:	South African
Home Language:	English
Other Languages:	Afrikaans
ID Number:	5807235148080

FORMAL QUALIFICATIONS

Matriculated	Pinelands High (matric exemption)	1976
Graduated	B.A. University of Cape Town	1980
	B.A. (Hons) (Archaeology) University of Cape Town	1982
	M.A. (Archaeology) University of Cape Town	1991

EXPERIENCE

Employment

Part time research asst	South African Museum (archaeology)	Nov-Feb 1978,1979
Student Ranger	Cape of Good Hope Nature Reserve	Dec-Feb 1980
National Service	SA Navy Rank: Sub-Lieutenant	1982-1984
Part time research asst	Spatial Archaeology Research Unit, UCT	1984
Junior Research Officer	Paleoanthropology Research Unit, Wits	1997(part time appt.)
Principal Investigator	Archaeology Contracts Office, UCT	1988-2012
Director	ACO Associates cc.	2008-present

Other experience and professional memberships

- Secretary, Archaeology Field Club, UCT. 1979
- Chairperson, Archaeology Field Club, UCT. 1980
- Co-organizer of the Spatial Archaeology Research Unit workshop: Environments and Prehistory in the western Cape. 1984
- Archaeological advisor, National Monuments Council, Western Cape Regional Plans Committee. 1993 - 1999
- Member: Association of Southern African Professional Archaeologists (ASAPA)
- Member: Association of Southern African Professional Archaeologists (ASAPA): CRM section (PI level with accreditation for Stone Age, Coastal Shell Middens, Colonial Period, Rock Paintings, Industrial, Bone Accumulations)
- Committee member: Archaeology Standards Generating Body (SGB) for SAQA
- Member: South African Archaeological Society
- Committee member: Heritage Western Cape, Archaeology, Palaeontology and Meteorites Committee appointed 2003 - 2007, re-appointed 2007 – 2013
- Member: Heritage Western Cape, Integrated Assessment Review Committee, 2009 - 2013

- Forensic consultant: Missing Persons Unit: National Prosecuting Authority 2007

Awards

Dept. of Cultural Affairs and Sport award for the Best Heritage Impact Assessment in the Western Cape for 2013/14.

Long term commercial projects

1997-2008 Directed all ACO cultural resource management activities for De Beers Namaqualand Mines

Peer Reviews

1997 Archaeological report prepared for Alpha Saldanha Cement project.
1999 Archaeological reports prepared for Namdeb.

Published Articles (relevant selection)

Avery, G., Halkett, D., Orton, J., Steele, T. & Klein, R. 2009. The Ysterfontein 1 Middle Stone Age Rock shelter and the Evolution of Coastal Foraging. South African Archaeological Society Goodwin Series 10: 66–89

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Dewar, G, Halkett, D, Hart, T., Orton, J. & Sealy, J. 2006. Implications of a mass kill site of springbok (antidorcas marsupialis) in South Africa: hunting practices, gender relations, and sharing in the later stone age. Journal of Archaeological Science 33, 1266-1275

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Hine, P., Sealy, J., Halkett D. & Hart T. 2010. Antiquity of stone-walled tidal fish traps on the cape coast, South Africa. South African Archaeological Bulletin 65 (191): 35–44

Jerardino, A., Wiltshire, N., Webley, L., Tusenius, M., Halkett, D., Hoffman, M.T. & Maggs, T. 2014. Site distribution and chronology at Soutpansklipheuwel, a rocky outcrop on the West Coast of South Africa. Journal of Island & Coastal Archaeology.

Klein, R.G., Avery, G., Cruz-Uribe, K., Halkett, D., Hart, T., Milo, R.G., Volman, T.P. 1999. Duinefontein 2: An Acheulean Site in the Western Cape Province of South Africa. Journal of Human Evolution 37, 153-190

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Orton, J., Hart, T.J.G. and Halkett, D.J. 2005. Shell middens in Namaqualand: Two Later Stone Age sites at Rooiwalbaai, Northern Cape Province, South Africa. South African Archaeological Bulletin, 60 (181): 24-32

Orton, J. & Halkett, D. 2001. Microlithic denticulates on a mid-Holocene open site near Jakkalsberg in the Richtersveld, northern Cape province, South Africa. Southern African Field Archaeology 10, 19-22

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Smith, A., Halkett, D., Hart, T. & Mütti, B. 2001. Spatial patterning, cultural identity and site integrity on open sites: evidence from Bloeddrift 23, a pre-colonial herder camp in the Richtersveld, northern Cape province, South Africa. South African Archaeological Bulletin 56 (173&174): 23-33

Wilson, M.L. & Halkett, D.J. 1981. The use of marine shell for decorating Cape coastal (Khoisan) pottery. South African Archaeological Bulletin 36: 43-44

Yates, R.J., Miller, D.E., Halkett, D.J., Manhire, A.H., Parkington, J.E. & Vogel J.C. 1986. A late mid-Holocene high sea level: a preliminary report on geo-archaeology at Elands Bay, western Cape Province, South Africa. South African Journal of Science 82: 164-165

Presentations and lectures (recent)

2007. In at the deep end. Lecture presented at the annual one-day lecture series of the Archaeological Society of the Western Cape and the Friends of the Stellenbosch Museum.

2008. The landscape of early colonial burial in Cape Town: a walking tour of excavation sites and buildings of interest in Green Point. Presented during the ASAPA, Mid-conference excursion. With a guidebook compiled by Dave Halkett, Tim Hart, Liesbet Schietecatte, Erin Finnegan & Katie Smuts.

2009-2016. In at the deep end. Contract archaeology: a case study of mitigation a pre-colonial heritage site to be impacted by development. Presented as part of APG5066F - Conservation Disciplines and Practices, MPhil in Conservation of the Built Environment, University of Cape Town.

2009/2010. “In at the deep end” and “Middens of steel”. Contract archaeology: case studies of mitigation of stone age and colonial heritage sites to be impacted by development. Presented as part of APG5066F - Conservation Disciplines and Practices, MPhil in Conservation of the Built Environment, University of Cape Town.

2009/2010/2011. Surveying, Measuring and Recording Archaeological Resources. Presented as part of APG5066F - Surveying, Measuring and Recording Heritage Resources, MPhil in Conservation of the Built Environment, University of Cape Town.

2011. …Blowing in The Wind: Renewable energy projects - Challenges and opportunities for heritage resource management. Lecture presented at the annual one-day lecture series of the Archaeological Society of the Western Cape and the Friends of the Stellenbosch Museum.

2012 “My Career in Archaeology”. Part of the Centre for Higher Education and Development series on careers, UCT.

Referees

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Field/Consulting/Heritage Management Experience (relevant selection)

Halkett, D., Hart, T. & Parkington, J. 1994. Phase 2 archaeological excavations at the Namakwa Sands Project (first phase), Vredendal district, Namaqualand. Unpublished report prepared for Namakwa Sands. Archaeology Contracts Office, UCT.

Halkett, D. & Hart, T. 1997 An archaeological assessment of the coastal strip and a proposed heritage management plan for De Beers Namaqualand Mines, Vol 1&2. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Halkett, D. & Lanham, J. 1998. Report on an initial visit to assess the impact of mining on archaeological sites in the Richtersveld. Prepared for Trans Hex Mining Ltd. Archaeology Contracts Office, UCT.

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Halkett, D. 2000. An initial assessment of heritage resources within the Trans Hex West Coast Diamond Concessions. Prepared for Trans Hex Mining Ltd. Archaeology Contracts Office, UCT.

Halkett, D. 2001. A report on archaeological excavations on the Orange River floodplain between Jakkalsberg and Sendelingsdrift: Richtersveld. Prepared for Trans Hex Mining Ltd. Archaeology Contracts Office, UCT.

Halkett, D. 2001. An inspection and assessment of specific archaeological sites on De Beers owned properties – Namaqualand. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Halkett, D. 2002. Phase 1 archaeological survey: assessment of mining blocks in the BMC and KN areas, Namaqualand. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Halkett, D. 2003. A report on the archaeological mitigation program at De Beers Namaqualand Mines, March 2002 to June 2003. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Orton, J. & Halkett, D. 2005. A report on the archaeological mitigation program at De Beers Namaqualand Mines, August to September 2004. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Orton, J. & Halkett, D. 2005. A report on the archaeological mitigation program at De Beers Namaqualand Mines, August to September 2004. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Orton, J. & Halkett, D. 2006. Mitigation of archaeological sites within the Buffels Marine and Koingnaas Complexes, Namaqualand, September 2005 To May 2006. Prepared for De Beers Consolidated Mines: Namaqualand Mines. Archaeology Contracts Office, UCT.

Webley, L. & Halkett, D. 2014. Baseline heritage assessment: proposed aquaculture development at Brand Se Baai, Matzikama Municipality, Western Cape. Prepared for SRK Consulting (South Africa) (Pty) Ltd. ACO Associates cc.

Halkett, D. & Webley T. 2015. Heritage Impact Assessment: Elandsfontein Phosphate mining right on a Portion of Portion 2 And Portion 4 of the farm Elandsfontein 349, Saldanha. Prepared for Billet Trade (Pty) Ltd T/A Braaf Environmental Practitioners on behalf of Elandsfontein Exploration and Mining (Pty) Ltd. ACO Associates cc.

Halkett, D. & Webley, L. 2016. Heritage Impact Assessment of the proposed extension of the Tormin mine, west coast, South Africa. Prepared for SRK Consulting (South Africa) (Pty) Ltd. ACO Associates cc.

APPENDIX 2: SPECIALIST DECLARATION

THE INDEPENDENT PERSON WHO COMPILED A SPECIALIST REPORT OR UNDERTOOK A SPECIALIST PROCESS

I D.J. HALKETT, as the appointed independent specialist hereby declare that I:

- act/ed as the independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 (specifically in terms of GN No. R. 982, as amended) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of GN No. R. 982, as amended.

Note: The terms of reference must be attached.

Signature of the specialist:

ACO ASSOCIATES CC.

Name of company:

14 DECEMBER 2017.

Date:

69

APPENDIX 3: GRADING CATEGORIES

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special **national** significance. Current examples: Robben Island	May be declared as a National Heritage Site managed by SAHRA.	Highest Significance
II	Heritage resources with special qualities which make them significant in the context of a **province** or region, but do not fulfil the criteria for Grade I status. Current examples: St George's Cathedral, Community House	May be declared as a Provincial Heritage Site managed by HWC.	Exceptionally High Significance
III		Such a resource contributes to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register. These resources are currently managed by HWC *unless the local authority has been found competent and has been granted delegated authority.*	
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. These are heritage resources which are significant in the context of an **area**.	This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration, both internal and external, is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive maximum protection at local level.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree. These are heritage resources which are significant in the context of a **townscape**, neighbourhood, settlement or community.	Like Grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be rare, but less so than Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at local level.	Medium Significance
IIIC	Such a resource is of contributing significance to the environs These are heritage resources which are significant in the context of a **streetscape or direct neighbourhood.**	This grading is applied to buildings and/or sites whose significance is contextual, i.e. in large part due to its contribution to the character or significance of the environs. These buildings and sites should, as a consequence, only be regulated if the significance of the environs is sufficient to warrant protective measures, regardless of whether the site falls within a Conservation or Heritage Area. Internal alterations should not necessarily be regulated.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant and approved by the authority. Section 34 can even be lifted by HWC for structures in this category if they are older than 60 years.	No research potential or other cultural significance

APPENDIX 4: PALAEONTOLOGICAL STUDY LETTER

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

EVOLUTIONARY STUDIES INSTITUTE

Palaeosciences Centre, East Campus, 1 Jan Smuts Avenue, Braamfontein, Johannesburg
Private Bag 3, WITS 2050, Johannesburg, SOUTH AFRICA Tel: 011 717 6682

Marion.bamford@wits.ac.za
14 September 2017

Dr Ragna Redelstorff
SAHRA
111 Harrington Street
Cape Town 8001

Dear Ragna

RE: Palaeontological Impact assessment for proposed new quarries, Northern Cape Province

On behalf of ACO Associates cc I have completed a desktop Palaeontological Impact assessment for the project and found that there is no possibility of finding fossils in the affected area.

The Little Namaqualand Suite rocks are granite to adamellite and the Eendoorn Granite has augen gneisses. Other volcanic rocks in the area are the pink gneisses of the Hoogoor Suite. Fossils do not occur in igneous rocks such as granites and gneisses because the rocks originate in the molten core and cool when reaching the earth's surface and are further metamorphosed in the case of gneisses. This is not a suitable environment for preserving fossils. Furthermore, only microfossils were present around 2000 – 1000Ma but the organisms did not live such settings. Macrofossils are much younger than this, ca 800 Ma. Along the Orange River and to the south are the alluvial and Aeolian sands of the Quaternary Kalahari sediments but these do not contain fossils either . These however will not be affected by the quarrying as they are not granites.

The extraction of granites and associated hard rocks will, therefore, not impact on any fossil heritage and no further palaeontology impact assessment is required.

Yours faithfully

MKBamford

Prof Marion Bamford
Director: Evolutionary Studies Institute