ARCHAEOLOGICAL IMPACT ASSESSMENT OF PROPOSED BORROW PITS AT SPRINGFONTEIN 60 AND SKOPPELMANSKRAAL 54 AND THE EXTENSION OF AN EXISTING BORROW PIT AT DIKBOOM 53, LAINGSBURG DISTRICT, WESTERN CAPE

(Assessment conducted under Section 38 (8) of the National Heritage Resources Act as part of a Heritage Impact Assessment)

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EXECUTIVE SUMMARY

Natura Viva cc was appointed by Vidamemoria Heritage Consultants on behalf of Aurecon South Africa (Pty) Ltd to undertake an Archaeological Impact Assessment (AIA) for the proposed borrow pits MR00374/19.5/0.25L (Vidamemoria pit no. 110) and MR00374/35.8/0.05L (Vidamemoria pit no. 113) and the proposed extension of borrow pit MR00374/29.9/0.05R (Vidamemoria pit no. 112) in the Laingsburg District of the Central Karoo. The middle point of these sites is approximately 51 km north-east of Laingsburg and 35 km south-west of Merweville. Material excavated from these sites will be used for the re-gravelling of the MR00374 and the excavated pits will be converted into water storage dams after completion of the mining.

This study forms part of the Heritage Impact Assessment triggered by the development. The brief for the study was a field visit and short report identifying and assessing archaeological resources and any impact on them, an assessment of significance and recommendations regarding any mitigation required.

The field assessment was conducted on foot on 2 June 2012. Archaeological visibility was good at two of the sites but problematic in parts of proposed Pit 113.

Pit 110: Several dispersed sandstone and Matjiesfontein chert artefacts were observed in an area affected by sheet wash. The few diagnostic artefacts appear to be Middle Stone Age (MSA).

Pit 112: The three isolated, large sandstone flakes noted were probably transported to the site by water.

Pit 113: A couple of sandstone flakes of doubtful anthropogenic origin were found in an area that is regularly flooded.

No dolerite boulders suitable for rock engravings occur in the area and no stone features such as walls or graves were observed.

The disturbed context of the stone artefacts at the proposed sites for Pits 110 and 112 indicates that the material is in a secondary context and is therefore of low archaeological heritage significance. No significant impact on such resources is expected if the proposed borrow pit and extension are developed. There will be no impact on heritage resources at Proposed Pit 113. No further archaeological studies or mitigation are recommended.

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1. INTRODUCTION

Natura Viva cc was appointed by Vidamemoria Heritage Consultants on behalf of Aurecon South Africa (Pty) Ltd to undertake an Archaeological Impact Assessment (AIA) for the proposed development of two borrow pits, MR00374/19.5/0.25L (Vidamemoria pit no. 110) and MR00374/35.8/0.05L (Vidamemoria pit no. 113), and the proposed extension of borrow pit MR00374/29.9/0.05R (Vidamemoria pit no. 112) in the Laingsburg District of the Central Karoo (Figure 1). The affected sites are situated along the MR00374 from the N1 to Merweville. The middle point of these sites is approximately 51 km north-east of Laingsburg and 35 km south-west of Merweville. Material excavated from the proposed extensions will be used for the maintenance of the gravel MR00374. Access to all three affected areas will be via existing roads and farm tracks. Topsoil from the newly developed areas will be stockpiled for later redistribution over the worked-out areas which will be converted for use as water storage dams.

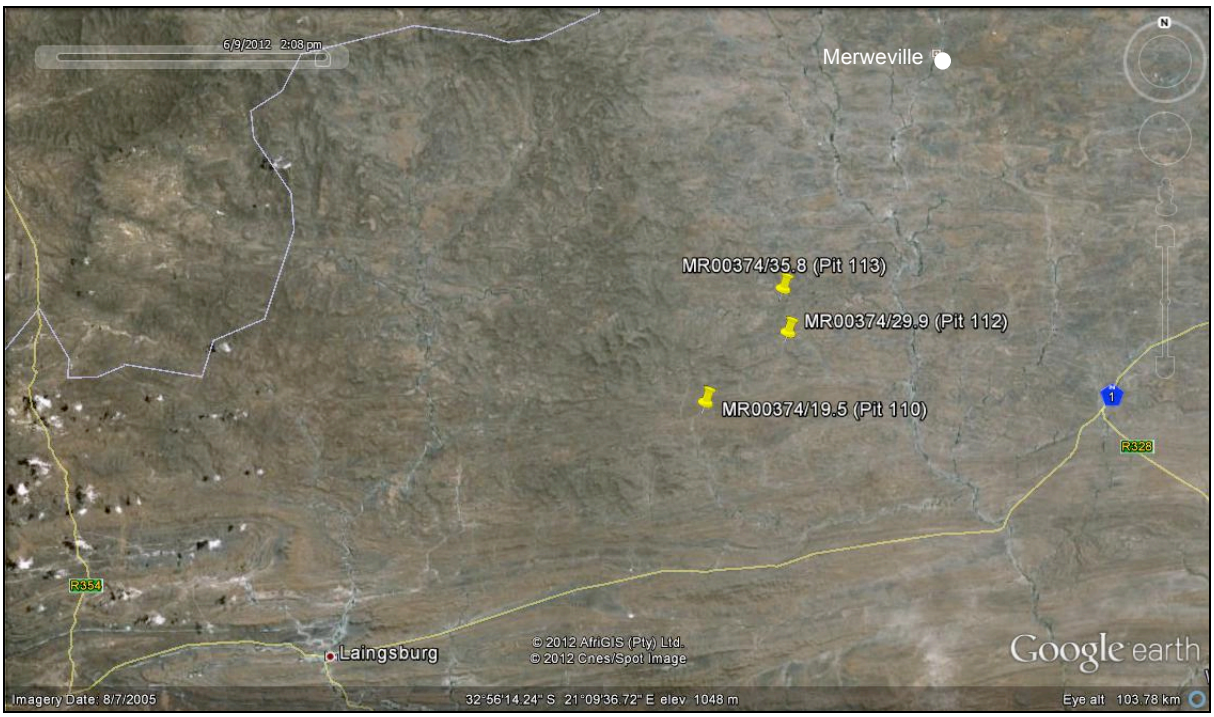


Figure 1: Google earth image showing the location of the proposed extensions to MR00374/19.5/0.25L (Pit 110), MR00374/35.8/0.05L (Pit 113) and the proposed borrow pit MR00374/29.9/0.05R (Pit 112). The distance between the pits and Laingsburg is approximately 51 km. Merweville is approximately 35 km away. The relevant 1:50 000 topographical map is 3221CD Amandelboom.

2. LEGAL FRAMEWORK

Section 38 of the National Heritage Resources Act (Act 25 of 1999) is triggered by certain types of development, including changes of character to an area exceeding 5 000m², and makes provision for compulsory Heritage Impact Assessments to assess the potential impacts of such proposed developments on heritage resources. In terms of Section 38(1), a

Notification of Intent to Develop (NID) form was submitted to Heritage Western Cape (HWC) by Vidamemoria. Following comment from HWC (case number 111124JB49) an AIA was included amongst the requirements according to Section 38(8) of the Act.

3. TERMS OF REFERENCE

The terms of reference for the AIA stipulated a field visit to locate and map archaeological resources, a short report dealing with the field observations, an assessment regarding the significance of the resources (in the context of other studies in the area) and any impacts on them, as well as recommendations regarding any mitigation required.

4. STUDY APPROACH

4.1 Methods

Fieldwork for the pits was undertaken on 2 June 2012. Site plans indicating the affected areas were provided by Aurecon for the Phase 1 survey. Each area was covered on foot and archaeological occurrences and tracks were recorded by a Garmin GPSMAP 62s set on the WGS84 datum (Figures 2, 12 & 19). Photographs were taken of all the sites surveyed and artefacts observed.

4.2 Limiting factors

Visibility of archaeological remains on the ground was good at Pits 110 and 112 where the terrain was covered by scattered karoo bushes. Clusters of fairly dense shrubs resulted in patches of poor visibility at the proposed Pit 113.

5. DESCRIPTION OF AFFECTED ENVIRONMENT AND SITES

5.1 Archaeological background:

With the notable exception of the research done by Sampson in the Seacow Valley (1985), the rich and varied archaeological heritage of the Great Karoo has not been systematically studied. Archaeological impact studies throughout the Karoo are however providing information about the nature and distribution of sites in other areas. For example, the survey done by the Professional Grave Solution (PGS) team for the Gamma-Omega Transmission Line (2010) recorded a variety of sites, ranging from Early Stone Age (ESA), Middle Stone Age (MSA), Later Stone Age (LSA) to possible herder windbreaks and historical sites. Their survey included a section near Merweville where they recorded a site with a dispersed scatter of cores and flakes at which most of the flakes could be refitted to a single prepared core. Another site consisted of a single bifacial handaxe and single struck blank in a disturbed context. A few small archaeological impact studies have been done in the Merweville area by HJ Deacon (2004, 2005a, 2005b). No archaeological material was seen at three proposed borrow pits at Ratelfontein, approximately 25 km to the east of the sites in the present study. Isolated occurrences of stone artefacts (a simple core and un-associated

flakes in one area, a single LSA core in another, and a typologically distinctive early Holocene type end scraper amongst other individual stone artefacts) were noted in the survey of the proposed 'Far North' Quarry Site about 12 km to the south-east of Merweville (Deacon 2005a). The most important find at this quarry site was a stone slab with engravings of three female figures. The study at Rietvalley, approximately 25 km to the north-west of Merweville, revealed a low density of dispersed stone artefacts which were not typologically distinctive, although a possible LSA bladelet and the proximal end of an ESA or MSA flake were noted.

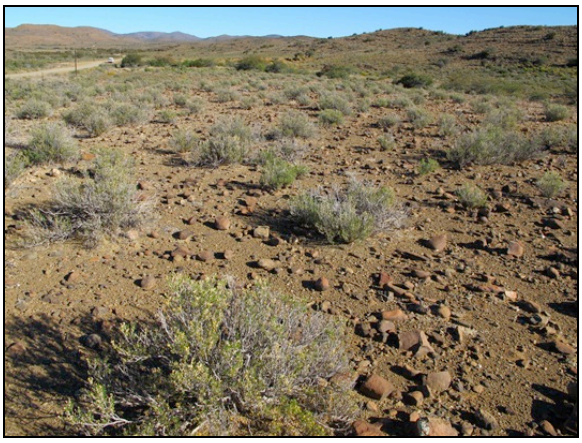
5.2 Borrow pit MR00374/19.5/0.25L (Vidamemoria pit no. 110)

Approximate area: Approximately 150 m x 100 m
Location: S 32˚59' 11.40" E 21˚15' 26.64"
Farm name and number: Springfontein 60

Environment: The proposed borrow pit lies to the east of a small dam on a stream terrace along the MR00374 (Figures 2 & 4). A small stream bed runs in a north-easterly direction through most of the northern half of the affected area (Figure 3), with a side branch of the stream joining it in the south-eastern corner of the polygon. The water courses are obviously areas of disturbance and there is more evidence of sheet wash as the terrain slopes gently to the south and west. The only existing boundary of the proposed pit is the fence and road on the southern side of the area. The side branch of the stream approximately delimits the eastern boundary of the polygon. Alluvium and angular to sub-rounded sandstone gravels overlie mudrocks of the Abrahamskraal Formation of the Lower Beaufort Group. Scree from a small sandstone ridge to the north-west is the source of some of the coarser material. The vegetation consists of scattered karoo bushes and clumps of grass, with larger *Acacia karroo* trees along the stream bed (Figure 3). Archaeological visibility was thus good.

Figure 2: Google earth image showing the proposed borrow Pit 110, waypoints and tracks of the field survey. The small dam to the west of the affected area and the stream bed running through the northern half are evident. The side branch of the stream is close to the south-eastern boundary of the polygon. Please note that the straight blue lines do not indicate survey tracks.

Figure 3: Pit 110 – view towards the south-east. The major part of the proposed borrow pit lies on the terrace between the stream bed and the gravel road in the background of the photo.




Figures 4 and 5: Pit 110 – view towards the south-west of the terrace where occasional artefacts were observed amongst the sandstone gravels; view towards the north-east of the edge of the terrace incised by the stream.

Results of the survey: A dispersed scatter of a few stone artefacts occurs amongst the sandstone gravels of the terrace mentioned above. Some of them were weathered and patinated. As the immediate area does not seem to have good sources of raw material for the manufacture of artefacts, most of the artefacts observed (Table 1 of the Appendix and Figures 6 to 11) seem to be made of Beaufort Group sandstone, some of it quite crude. Two artefacts made of Matjiesfontein chert – the proximal end of a snapped blade (Figure 6) and the tip of a point (Figure 10) were observed. The diagnostic artefacts such as blades and points appear to belong to the MSA. No dolerite boulders suitable for rock engravings occur in the area. No stone features such as walls or graves were observed.

Figures 6, 7 and 8: Pit 110 – the proximal end of a Matjiesfontein chert blade and sandstone point; sandstone chunk; sandstone blade. The scale is in cm.

Figures 9, 10 and 11: Pit 110 – sandstone flakes and snapped blade; chert flake; sandstone blade fragment and flake. The scale is in cm.

5.3 Borrow pit MR00374/29.9/0.05R (Vidamemoria pit no. 112)

Approximate area: Approximately 220 m x 100 m
Location: S 32˚55'32.52" E 21˚20'44.88"
Farm name and number: Dikboom (Dikboome 53)

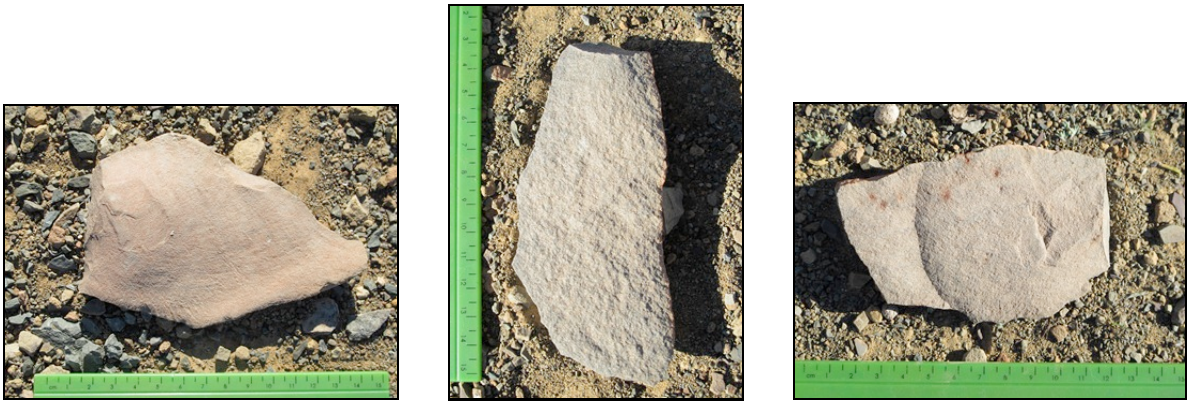
Environment: Pit 112 is the proposed extension of an existing pit which has been converted into a dam (Figures 12 & 15). The affected area lies between the MR00374 to the west and a row of small hills to the east. The northern boundary lies just beyond the dam wall and a pipeline from a sheep trough was taken as the marker for the southern end of the proposed extension. Alluvium overlies Abrahamskraal Formation mudrock over most of the site (Figure 13). An apron of scree of angular to sub-rounded sandstone blocks and chunks overlies the alluvium at the foot of the small hills (Figure 14). Several channels and erosion gullies (dongas) occur in the western part and there is evidence of sheet wash over a large section of the affected area. The vegetation consists of scattered clumps of grass and small karoo bushes so the visibilility of archaeological material on the ground was good.

Figure 12: Google earth image showing the proposed extension to borrow pit 112, the tracks and waypoints of the field survey. The western side of the affected area has several channels and small dongas leading water to the existing dam. Please note that the straight blue lines do not indicate survey tracks.

Figure 13: Pit 112 – view towards the south-east over the alluvium of the southern half of the affected area. The patch devoid of vegetation in the middle ground indicates the southern extremity of the existing borrow pit.

Figures 14 and 15: Pit 112 – view towards the south-west over most of the eastern and central parts of the affected area taken from the slope close to the north-eastern corner of the polygon; view towards the north showing dongas, a geotechnical test pit and the existing borrow pit converted into a dam.

Results of the survey: Three isolated, large sandstone flakes of indeterminate age were the only artefacts observed (Table 2 in the Appendix and Figures 16 to 18). Given the evidence of sheet erosion, it is likely that they were brought in from elsewhere. No dolerite boulders suitable for rock engravings occur in the area. No stone features such as walls or graves were observed.



Figures 16, 17 and 18: Pit 112 – sandstone flakes. The ruler is about 15 cm in length.

5.4 Borrow pit MR00374/35.8/0.05L (Vidamemoria pit no. 113)

Approximate area: Approximately 200 m x 40 m
Location: S 32˚53' 12.48" E 21˚20' 29.04"
Farm name and number: Skoppelmaaikraal (Schoppelmaaykraal 54)

Environment: The proposed borrow pit is roughly rectangular in shape and is aligned in a north-east to south-west direction (Figure 19). Boundaries are formed by the MR00374 to the north-east, the farm track to the north-west and a stream and cliff to the south-east. There is no obvious boundary for the south-western end of the polygon. The whole area lies on a river alluvial floodplain with coarse gravels containing blocks of sandstone and quartzite (Figures 20, 22 & 23). A good section through the mudrocks and sandstones of the Abrahamskraal Formation is evident in the cliff face (Figure 21). The density of the vegetation varies across the site and affects archaeological visibility. This ranged from good to poor. Concentrations of *Acacia karroo* occur in the central part (Figure 21) whereas lower, more scattered *Lycium sp*. and kraalbos (*Galenia africana*) are predominant in the rest. Dead branches also obscured the ground in some areas.

Figure 19: Google earth image showing proposed Pit 113, the tracks and waypoints of the field survey. Please note that the polygon provided is slightly displaced as the site report shows the affected area as lying between the track and stream bed. Also note that the straight blue lines do not indicate survey tracks. The vegetation appears to have become denser since the satellite image was taken.

Figure 20: Pit 113 – view towards the south-west taken from the north-east corner of the affected area. The central area has denser vegetation consisting of *Acacia karroo*.

Figure 21: Pit 113 – view over the central part of the proposed pit area towards the stream and cliff to the south-east. Archaeological visibility was poor in this area.


Figures 22 and 23: Pit 113 – view towards the north-east from the south-eastern part of the site; view towards the south-east from the stream bed at the foot of the cliff.

Results of the survey: A survey of the affected area was undertaken although it was clear that nothing found would be in a primary context. The landowner, Mr Hans Botes, commented that this area is regularly flooded and this was apparent on the ground. Besides flooding, many aardvark holes and other signs of disturbance were observed. The two waypoints (Figure 19) indicate two sandstone flakes of doubtful anthropogenic origin. They are fairly fresh-looking and are probably the result of boulders being hit while transported by water. No dolerite boulders suitable for rock engravings occur in the area. No stone features such as walls or graves were observed. This proposed pit site is therefore regarded as having no archaeological material.

6. SIGNIFICANCE AND RECOMMENDATIONS

Most of the artefacts noted in this study came from proposed Pit 110 but, like the proposed extension at Pit 112, all the material was found in a secondary context in areas affected by sheet wash. No rock engravings or stone features such as walls or graves were observed. The archaeological material from these sites is considered to be of low heritage significance and no further archaeological studies or mitigation are recommended.

If any human remains are found during the development of the proposed pits, work in that area must cease and the South African Heritage Resources Agency (SAHRA) must be notified immediately.

7. REFERENCES

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8. ACKNOWLEDGEMENTS

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9. APPENDIX

The waypoints below do not indicate sites but only occurrences of single artefacts or a small group of artefacts found in close proximity to each other.

Table 1: Pit 110 waypoints.

Waypoint	South	East	Description of material found
009	S32 59 12.7	E21 15 21.2	Snapped chert blade, sandstone point
010	S32 59 11.6	E21 15 22.0	Sandstone chunk
011	S32 59 12.0	E21 15 22.5	Sandstone blade
012	S32 59 11.6	S32 59 11.6	Sandstone flake
013	S32 59 11.7	E21 15 26.0	Sandstone flakes & snapped blade
014	S32 59 11.4	E21 15 26.4	Chert flake
015	S32 59 10.7	E21 15 30.1	Sandstone flake
016	S32 59 07.9	E21 15 29.9	Snapped sandstone blade & flake

Table 2: Pit 112 waypoints.

Waypoint	South	East	Description of material found
022	S32 55 30.8	E21 20 45.7	Large sandstone flake
023	S32 55 37.6	E21 20 44.6	Large sandstone flake
024	S32 55 36.0	E21 20 43.7	Large sandstone flake

Table 3: Pit 113 waypoints.

Waypoint	South	East	Description of material found
025	S32 53 11.5	E21 20 29.1	Non-artefactual flake
026	S32 53 11.9	E21 20 29.4	Non-artefactual flake