

**The archaeological survey of rock art sites in
the ~3km radius of the Sonae Novobord (Pty)
Ltd, Rocky's Drift, Mpumalanga**

For Sonae Novobord (Pty)

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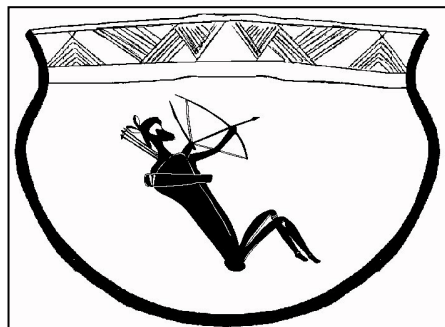


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INTRODUCTION

Sonae Novobord (Pty) Ltd. contracted Umlando to undertake an archaeological survey and assessment of rock art sites in the vicinity of its new drier. The reason for the impact assessment is as follows:

“Novobord started its operation in 1981, producing particle board (chipboard). During 1989 the plant expanded and a second particle board line was installed. During 1990 a MDF (medium density fibre board) preparation plant was added and this allowed the plant to produce **either** P/B or MDF on the new line (one preparation plant was in operation while the other was stopped). The old line and its drier [were] decommissioned during 1996.

During 2000 an EIA was done for the installation of a new press. This would allow the plant to run both preparation plants and produce MDF on the existing line and P/B on the new line. The installation of the press was planned for 2006/7 and is currently in progress.

It is our intention to upgrade the current particle board dry preparation plant and this is the EIA that we are currently busy with. The upgrade would entail the installation of a new drier. Our current Air pollution permit is set at 400mg/m³. Our current emissions are \pm 160mg/m³. The new drier is designed to perform at emission levels of below 100mg/M³. The drier uses wood (saligna and pine dust) as a prime source of fuel. In case of emergencies we use a light furnace fuel (Catbot 50/50 - Sasol product > most environmental friendly product we can use). The use of catbot is limited to approximately 10% of total operational time. Stack emissions in terms of other substances such as CO₂, Sulphur dioxide, Nitric dioxide etc are well below the legal limits - this due to the wood burning process as a source of heat.

Public concern is that our emissions might affect the rock art in the vicinity. “¹

Novobord had contacted SAHRA regarding the heritage impact assessment. SAHRA had informed Novobord that they were not legally bound to undertake such an assessment, as there is no direct proof that the emissions would affect the potential art. However, Novobord undertook the assessment, as it would be the ethically correct procedure.

METHOD

The contract was negotiated in early September and undertaken a month later. It is for this reason that we have not had time to approach all potential databases². Several rock

¹ Email to Umlando from Anton Claasen, dated 15/09/2006

² We were in the field in the Free State for two weeks during this period.

art sites have been recorded in the Nelspruit and Witrivier area in the past. We approached RARI (Rock Art Research Institute) from Wits to access their database, or alternatively to pay them to undertake the database search on our behalf. RARI has the more complete records of the sites in this area. We were unable to obtain the site location records from RARI prior to our survey, and have not been given the data to date³. We were given a web address to access the images of some of the sites. These images are useful as part of our baseline study.

Our method is as follows:

- ❖ Form a baseline study of the art before the plant is on line
 - Obtain as many older photographs of the recorded images as possible. These images would need to be dated.
 - In this way we can determine a possible rate of deterioration prior to emissions.
 - Approach various institutions that may hold records of the sites. This is an ongoing process.
 - Survey an area 3km radius of the plant. This 3km radius would be the immediate effected area.
 - Surveys were initiated with the consent from the landowner. In most cases the landowners were aware of the art on/near their property and directed us to the sites personally.
 - Surveys also extended to areas that had the potential to yield rock art sites.
 - Record the art digitally with camera and vidcam. The vidcam is set at DVD quality.
 - Have a running commentary of the description of the art on vidcam.
 - Save these recordings digitally and give copies to the landowners, client and SAHRA.
- ❖ Suggest a management plan for the monitoring of the art.
- ❖ Novobord monitors their stack emissions and have done a quantitative survey of formaldehyde emissions. If the emissions increase at these points, then a **correlation (not a cause)** may be inferred.

³ 2 weeks after our return, however it did not include any site descriptions or locations

- ❖ If the art does deteriorate after the plant goes on-line, then additional measures should be taken.
- ❖ Surveys will occur in the future on a regular basis to monitor the art.

The Phase 1 of this project is thus the formation of the base line study.

Results: The Sites

We only include the more interesting, and/or general, photographs in the report. The site specific photographs, and videos, are on a DVD disc.

BOT1

Approx. 100-200m up steep hill from the Botes' residence. Site is visible from the road as a large boulder with overhang, halfway up the hill. From the Botes' Residence is in a ~SW direction.

Art is situated in 3 main areas. On the far left it is very faded. In the middle are three outlined images; while on the right are a series of several images. This will deal with the images from right to left (Fig 1).

Far Right:

Long line ending in two possible feet facing left. To the right is an outline of the rump and tail of an animal. Approx. 60 cm below is an impala-type of animal (horns are curved). The animals are in a medium faded state of preservation.

Just below this are two humans in a bending forward position (Fig. 1 top). Right human is holding onto the hips of the left human. The former is only visible from the torso upwards. Both humans have Nguni cattle-type horns on their heads. These are in a medium faded condition. Below this is a faded human facing left. Only the upper body remains. The human is holding a bow.

Around the corner, to the left, is the second or middle frieze (fig. 1 bottom). This frieze consists of two antelope and one human. The outlines of these images are fairly well preserved despite the water erosion. The water has, however eroded the non-red paint. The main antelope is a possible bushbuck, (although it could be a nyala or kudu) facing the human. I suggest bushbuck due to the size of the horns, tucked tail and stripes on the mouth area. The stripes on the body and mouth are still clearly visible. Below this antelope is the rear view of a possible similar antelope. The human is a male with an erect penis and signs of steatopygia. The important feature is that the lines of the bushbuck are reproduced on the head and torso of the human.

To the left of this frieze is an area of smeared and/or washed ochre. No specific images can be observed.

BUNDU

Bundu is situated to the north of Nelspruit and nearly opposite Novobord. The land consists of several outcrops with large boulders, as well as outcrops yielding various sizes of cliffs. The outcrops were surveyed for areas that appeared more likely to yield art. Only one rock art site was recorded in the area.

This site consists of various panels on three boulders (Fig. 2). The main panel is located in an exfoliated area. A part of this area is washed by water and the art is poorly preserved. Other areas of the boulder are fairly well preserved. Two other panels exist on two separate boulders. Both of these panels are poorly preserved as people viewing the art at the main panel have rubbed them.

FIGURE 1: PANEL AT BOT1



FIG. 2: GENERAL PANEL AT BUNDU



FIG. 3: IMAGES OF HUMANS AND ARROWS AT BUNDU



Panel 1

Panel 1 consists of four humans, one antelope and a few smears (fig. 3). The smears are in faded orange-red, with a faded human facing left. This human is carrying a bow and long stick, and possible quiver. There is a group of three males, all whom are facing left. The two left-hand side males each have one leg raised up. The middle human has had bits of its face chipped off, either in an attempt to remove the art or the ochre. The far right male is in a walking position and is holding a long stick, a bow and several arrows. The arrows are the most intriguing part of this image as they are composite arrows. The arrows consist of three parts (from bottom to top):

- The main shaft with the arrow heads facing down (heads not shown);
- A middle area that connects the two shafts; this consists of a (bone) link shaft and/or a sinew binding with a glue. This is probably the “bulbous” part observed in the images.
- The tail of the arrow that consists of another shaft with the feathers. In these images the tails of the arrows are very poorly preserved and were probably painted in a different colour.

Below this is a faded antelope

Panel 2:

Large male with infibulated penis facing left. Below him is a very faded antelope. To the right of these two images are various water smeared areas of pigment. Within this general smeared area is a faded antelope facing right and the torso of another antelope.

Panel 3:

Panel three consists of a general water smeared area in faded ochre, and several humans and animals. The top right is a line that splits into two in an orange pigment. One fork of this line extends to the edge of the exfoliated area, while the other line touches a

hartebeest/bontebok below it. The alternative to this forked line is that of a human facing left with the legs painted so as to extend to various parts of the rock face.

At the base of this panel is a duiker-like antelope and indeterminate antelope facing left. Above this is another faded antelope with ears that are larger than the other antelope in this frieze.

To the right of these antelope is a large, faded antelope in orange and white. It appears to be a hartebeest or bontebok. The stomach and base of the neck is painted in white. The muzzle of the antelope is also in white and clearly defines the shape of the antelope's mouth. The ears are small and are erect.

Below and to the left of this orange antelope are two smaller antelope (impala or duiker). One of these is superimposed on the orange antelope.

Above the orange antelope are two very faded images. These consist of a human and antelope facing left

Panel 4:

This area is the bottom central area. Generally it consists of a much smeared area of red and orange ochre with a few images still visible. More importantly are the remains of two late white images (in reference to the Drakensberg Late White images). These are images that tend to occur last in the painted sequence of the art.

On the far left are the faded remains of the legs of an animal or human. To the right is a human facing left in a walking position. Scratching or pecking has damaged this human. Between these two images is a small faded antelope. Above these images is a small duiker facing left in white pigment. It is poorly preserved. To the left of this duiker is an area of indeterminate white paint. Above these are two images in red and white paint. The body is in red while the horns are in white. There is also a possible outline of an animal in white. Above this are very faded human legs.

Panel 5:

This is on the left-hand side boulder. The area originally had several images but have now been smeared by humans viewing the main art panel. Only a few images are now visible. On the right-hand side are two faded antelope facing right. Below these, and to the left, are three faded humans walking towards the left.. At the bottom right is an antelope with a long neck, facing left.

Panel 6:

Main area consists of smeared ochre and natural rock stains. One image is painted on the left-hand side. This image has human legs with a bulbous body.

LOWLANDS

The original Farm Lowlands has been subdivided. We limited our survey to the area adjacent to (east of) Bundu. Other sites have been previously recorded on the original farm, but these are outside the study area. One main rock outcrop occurs in this area. Several boulders lie on this rock outcrop, creating overhangs and crevices suitable for painting. In addition to the art, there are several human-made terraces that contain Stone Age and Late Iron Age artefacts. In addition to these general living areas, the entire outcrop is a series of stone walls and terraces, and possible burials. These date to the Late Iron Age and post-date *c.* AD 1600, but appear to pre-date the 20th century. Several excavations have occurred in various parts of the site and I presume these are from people searching for the alleged “Kruger Millions”.

The art is concentrated along the southern side of the outcrop and are all relatively close to each other. A total of five different “sites” were recorded. These begin from the northernmost images and end at the southern side. Some of these have been previously

Fig. 4: GENERAL IMAGES AT ULOW1



recorded. I have prefixed the site name with a U, for Umlando, so as not to confuse them with the other recordings. The previous recordings were not made available to us for this survey. I have been informed that several images on the Farm Lowlands have occurred in various publications.

ULOW1

The site is located between two boulders and is east facing. The images are poorly preserved as a result of water erosion (fig. 4). The top left human is very faded and painted on an exfoliated area. To the right are two faded humans who are also painted in an exfoliated area. The two humans are holding hands. The left-hand side human is facing right and standing upright, while the right-hand side human is facing left and slanting to the left. Below these humans is a single human (~15cm in height) facing the group of humans to the right and a small palette. There are four faded humans in this group and they are in a walking position, facing right. Below, and to the right, is a faded human facing right, in an exfoliated area. This human has been scratched and/or pecked.

ULOW2

The site is ~10m south of ULOW1, and is located on a large exfoliated section of a boulder that is northwest facing (fig. 5). This panel is of interest in that it has two different styles of painting, if not artists from different cultural backgrounds.

The art is as follows (from top left to right)

- Three thick horizontal orange finger smears
- Two red vertical lines
- Two horizontal orange finger smears
- Row of three horizontal finger smears.
- Row of very faded humans with finger dots above them (or these are finger smears with finger dots above) and to the left are more finger dots.
- Very faded human to the right

- Above right is a double row of red finger dots.
- Two eland torsos (outline and fill motif), with no head, legs, etc.
- Below eland is area of faded/smearred paint/images
- Below right is group of faded orange finger dots in a long row.
- Below are three horizontal rows of red finger dots.
- Below and to right is a row of faded orange finger dots. Two vertical crayon lines occur over the orange and red finger dots.
- Below left are two humans and an eland torso in medium state of preservation. The eland has a human to the upper left and right of it, and it has been chipped/pecked. The right human has a bow in one hand, while a thin line emanates from its other hand. This line touches the eland, and to the human on the left..

ULOW3

The site is ~20m south of ULOW2 and is located in a crevice created by two boulders. The images at this site are fairly well preserved, and are probably one of the best preserved panels in this survey (fig. 6). There is pottery and stone tools on the ground.

The art is as follows:

- All elephant and antelope images, in red, are outlined and then infilled.
- (male?) Human (20-25 cm) facing a large (tusks/male?) elephant (~21cm from chest to rump). The human has tassels at each knee. These two images are superimposed on a row of elephant below.
- Row of three elephant walking to the left, and getting smaller from right to left.. The far left elephant is the most faded. The next two elephant appear to be walking with trunk-to-trail. The ears of both are outlined. Possible fourth elephant on the far right.
- Below the third elephant, and superimposed over its hind legs, is a small antelope with a long neck. Another similar antelope is below it. Both antelope would have had white(?) legs. These two antelope are possibly rhebuck.

- Row of four hartebeest (?) facing left in a reasonably well preserved state. On the far left is another hartebeest facing right. The main hartebeest has been chipped/pecked and with black pen/khoki graffiti.
- To the right are one red and one orange klipspringer/duiker. These are faded.
- Above these duiker, and below the fourth elephant are two human legs in black.
- To the right of the orange duiker is a human facing right in a bent forward posture, and an orange pallet.
- Below is a wildebeest facing left and a small rhebuck.
- To the right are two palettes, and one human with bow and arrow. This human is facing left. One palette is painted on an image with two (human?) legs.
- Below the wildebeest are two geometric finger paintings.
- To the right of the wildebeest is a rhebuck. Facing left on top of a palette.
- To its right is an orange rhebuck (~4cm in size).
- At the very bottom is the outline of a possible cave, or semi-circle. This is also finger painted.

ULOW4

This site is ~10m southeast of ULOW3 and is located underneath a large boulder that sits on the main outcrop. The paintings occur at the far back of the boulder. The roof ranges from ~80cm ~ 30cm in height, and a depth of ~2m. It is a tight fit! The overhang faces southeast.

There are two images at this site (fig. 7): one human and one palette. The human is walking downwards, or vertically. The palette may have been rubbed, or smeared. This rubbing or smearing would have been done intentionally.

ULOW5

The site is located on the other side of the boulder from ULOW3 and ULOW4. It is a large image, ~63cm in length (fig. 8). The painting is very faded and appears to be in a water seepage area.. The animal is facing right and has a long tail. The head was probably in a different colour. The animal could be either an elephant or an eland.

FIG. 5: GENERAL IMAGES AT ULOW2



FIG. 6: GENERAL IMAGES AT ULOW3



FIG. 7: GENERAL IMAGES AT ULOW4



FIG. 8: GENERAL IMAGES AT ULOW5



CONCLUSION AND MANAGEMENT PLAN

The archaeological survey recorded several archaeological sites. These included late Iron Age and Later Stone Age sites. The scope of this report is to comment only on the rock art sites. The other archaeological sites will be documented with SAHRA in the form of general site records.

An approximate 3km radius around the Novobord plant was determined as the effected area. All of these areas were surveyed, except for the one ridge directly opposite the Bundu entrance. We are attempting to locate a landowner for permission to enter the property. This area will be surveyed during the next follow-up survey.

A total of seven rock art sites were recorded in digital format. The art ranges from well to very poorly preserved. The poorly preserved sites, or sections of a site, are a result of natural and/or human activity. These were highlighted above.

Copies of the recordings are kept with Umlando, Novobord, SAHRA and the Regional Data Recording Center (in this case the Natural Cultural History Museum). Umlando will request a general “no-access policy” to the information on the site record forms as it has research potential. This means that other researchers will not be allowed to access this material for a specific time period, in case we wish to study or publish the end, or intermediate results.

Only one more area needs to be surveyed and this will be undertaken in a follow-up survey.

Umlando, and Novobord, started the assessment on the assumption that the emissions may effect the art. If the emissions do affect the art we need to be able to prove this effect quantitatively and qualitatively. Quantitative proof would be in the form of emission rates. To sample the emissions at each rock art site would consists of using expensive

carbon sample rods, and employing a team to install, retrieve and analyse these rods. The samples taken at the perimeters of the plant and will be sufficient to detect any if any increase does occur. We can assume that an increase in emissions nearby the plant will result in an increase of emissions nearby the rock art sites, even if in reduced amounts. If no increase is recorded, and if the art continues to deteriorate, then another factor is involved.

External factors are a serious component if/when one considers changes in the quality of the art. These factors include:

- Human activity at the art that includes rubbing of the art, graffiti on the art, and/or removing the art.
- Natural water seepage
- Natural exfoliation
- Other negative environmental factors from neighbouring industries
- Other negative environmental factors from industries “upwind” from sites, e.g. there have been suggestions that the coal stations in the Witbank region have increased the effect of acid rain in the Nelspruit area⁴.

Any change to an environment should cause an effect on that environment. We would presume that if the change is constant and over a long period of time, then the changes, or the effects of those changes, may either stabilise or increase. Thus, if the emissions at Novobord do effect the art, there is a greater chance that more damage may occur in the initial years of the emissions. Although the long term effects would also need to be foreseen. If the emissions do have the effect of destroying the art then we need to monitor the first years more regularly than later years.

We suggest a two pronged study. First, Novobord keeps accurate records of the emissions along its perimeters. This is normally subject to an internal and external environmental audit. Second, the rock art sites are visited every year for the first five

⁴ See Mbombelo State of the Environment Report 2004, pp 45 & 49. If this is correct, then these companies should be approached to undertake impact assessments of the areas that they are affecting.

years. These visits will re-record the images and compare them with previous images. We can then determine if any changes in the art are global (i.e. amongst all of the sites) or local (i.e. site specific). If no changes are observed after this phase then a less intense monitoring program of every 2 – 5 years should be established. The nature of the monitoring phases will change though time according to necessity.

If changes are observed, and can be directly attributed to the emissions caused by Novobord, then alternative strategies are needed for monitoring and assessing the images. However, any claims to any form of deterioration of the art will need to be thoroughly documented and proven. We do not believe that it would be easy, or correct, to target any one company.