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PRELIMINARY ARCHAEOLOGICAL
IMPACT ASSESSMENT

For the Maandagshoek Amplats Platinum Project

TABLE OF CONTENTS

1. INTRODUCTION.....	3
2. AIM.....	3
3. FIELDWORK.....	4
4. GEOGRAPHICAL/ENVIRONMENTAL SETTING.....	4
5. PREVIOUS ARCHAEOLOGICAL INVESTIGATIONS.....	5
6. METHODOLOGY.....	6
7. SITE DESCRIPTIONS.....	8
7.1 AREA 1.....	8
7.1.1 MTD 001.....	8
7.1.2 MTD 002.....	10
7.1.3 MTD 003.....	10
7.1.4 MTD 004.....	11
7.1.5 MTD 005.....	11
7.1.6 MTD 006.....	12
7.1.7 MTD 007.....	12
7.1.8 MTD 008.....	12
7.1.9 MTD 009.....	13
7.2 AREA 2.....	13
7.2.1 MCP 001.....	13
7.2.2 MCP 002.....	14
7.2.3 MCP 003.....	15
7.2.4 MCP 004.....	15
7.2.5 MCP 005.....	16
7.2.6 MCP 006.....	16
7.3 AREA 3.....	17
7.3.1 MSS 001.....	17
7.3.2 MSS 002.....	18
7.3.3 MSS 003.....	18
7.3.4 MSS 004.....	18
7.4 AREA 4.....	19
7.4.1 Maandagshoek Northern Shaft I.....	19
7.4.2 Maandagshoek Northern Shaft II.....	20
7.5 AREA 5.....	20
7.5.1 Tar road to Office complex.....	21
7.5.2 Office Complex to Concentrator Plant.....	21
7.5.3 Concentrator Plant to Northern Shaft.....	22
8. INTERPRETATION AND RECOMMENDATIONS.....	22
8.1 AREA 1.....	22
8.1.1 MTD 001.....	22

8.1.2 MTD 002 23

8.1.3 MTD 003, MTD 004, MTD 005, MTD 006, MTD 007 24

8.1.4 MTD 008 24

8.1.5 MTD 009 25

8.2 AREA 2 25

8.2.1 MCP 001 25

8.2.2 MCP 002 26

8.2.3 MCP 003 26

8.2.4 MCP 004 26

8.2.5 MCP 005 and MCP 006 27

8.3 AREA 3 27

8.3.1 MSS 001, MSS 002, MSS 003 27

8.3.2 MSS 004 28

8.4 AREA 4 28

8.4.1 MNS I 001 28

8.4.2 MNS II 001 29

8.5 AREA 5 29

8.5.1 Tar road to Office complex 29

8.5.2 Office Complex to Concentrator Plant, MAR II 001 & MAR II 002... 29

8.5.3 Concentrator Plant to Northern Shaft 29

9. CONCLUSION 30

10. REFERENCES 31

ADDENDUM A (Photographs)

ADDENDUM B (Guidelines for the handling of graves)

MAANDAGSHOEK AMPLATS PLATINUM PROJECT

1. Introduction

Archeo-Info completed a Preliminary Archaeological Impact Assessment (P.A.I.A.) on the proposed Survey and Access Routes in the Maandagshoek and Onverwacht Mining areas during August and September of 1999 (reports titled "Preliminary Archaeological Impact Assessment, Maandagshoek and Onverwacht Proposed Survey and Access Routes", 27 August 1999 and "Archaeological Sensitivity, Maandagshoek, Winterveld and Onverwacht Mining Areas", 9 September 1999). Further detailed archaeological surveys were requested through Metago Environmental Engineers (Pty) Ltd. for the Maandagshoek Amplats Platinum Project. The P.A.I.A. was performed on the proposed Concentrator Plant Site, Concentrator Plant Site Mine Shaft (e.g. South Shaft), Village Mine Shaft (e.g. Northern Shaft, two proposed areas), Access roads and Haulage roads and the Tailings dam. This was conducted in accordance with the newly approved Act 25 of 1999 and comprised the evaluation of the archaeological sensitivity of the above mentioned areas.

2. Aim

The aim of the detailed archaeological survey was to determine the archaeological potential of the study areas and how the proposed developments will affect it. The investigators surveyed the proposed sites and routes within the given locations and reserves to establish the viability of the placements of the sites and routes from an archaeological point of view. This was done to provide the client with detailed archaeological information and recommendations, which could affect and assist the planning and development of the proposed sites and routes. The investigators also concentrated on the identification, documentation and plotting of graves in the study areas. Previous involvement with other projects countrywide stressed the need for the early identification of graves albeit by the social consultant or

archaeologist involved. This information will enable the developers to incorporate the sensitive issue of graves in their planning and negotiate any exhumations and reburials at an early stage of the project in a correct and acceptable manner.

3. Fieldwork

Archaeo-Info met with Mr. R. Duckworth from Merago Environmental Engineers on March 10, 2000 at the Amplats Project Offices at the Montrose mine. After orientation of the proposed sites and routes to be investigated, two archaeologists commenced with the survey. The proposed Tailings dam of approximately 200 hectares was surveyed first on March 10 and 11. The proposed Concentrator Plant Site was surveyed second on March 12. The proposed Concentrator Plant Site Mine Shaft (e.g. Southern Shaft) and two proposed Village Mine Shafts (e.g. Northern Shaft 1 & 2) and appropriate Vent Shafts were surveyed next on March 13. On the last day of the week, March 14, the Access roads and Haulage roads were surveyed. An additional day was used to survey the expanded proposed Concentrator Plant Site, which completed the fieldwork for the P.A.I.A.

4. Geographical/Environmental Setting

The study areas concerned are situated on the farms Hendriksplaats 281 KT, Onverwacht 292 KT and Maandagshoek 254 KT in the former homeland of Lebowa near Steelpoort, Mpumalanga. The proposed Tailings dam will be situated on the north-eastern side of a mountain and will cover approximately 200 hectares of the foot and lower parts of the mountain slopes. It will also cover a number of streams and dongas running northwards from the mountain into the valley below.

The proposed Concentrator Plant Site will be situated in the flats of a valley just north of a small hill (koppie). Streams are situated on the northern and north-western extends of the proposed site. Various dongas criss-cross the

proposed site. The proposed Concentrator Plant Site Mine Shaft (e.g. Southern Shaft) will be situated on the western slopes of a mountain extending westwards down to the flats of the valley below. The proposed Village Mine Shafts (Northern Shafts 1 & 2) will be situated on the flinges of a village, south and north of a hill respectively.

The proposed Access roads and Haulage roads will connect the proposed sites and will largely be situated on the flats of the valleys crossing several streams and dongas.

The study areas were densely overgrown with a lush carpet of grass and typical thorny bushveld plant growth which were dominated by Sicklebush and Sweetthorn. The dense plant growth was a result of the recent good rains in the region. Large areas were also cultivated in recent times and areas situated on the slopes of the mountains were utilised for cattle grazing. Several streams and dongas were also present, especially in the valleys between the surrounding mountains and hills.

5. Previous Archaeological Investigations

Archaeo-Info performed a P.A.I.A. in the Maandagshoek and Onverwacht areas during August and September 1999. These reports ("Preliminary Archaeological Impact Assessment, Maandagshoek and Onverwacht Proposed Survey and Access Routes", 27 August 1999 and "Archaeological Sensitivity, Maandagshoek, Winterveld and Onverwacht Mining Areas", 9 September 1999) were submitted to the client and were consulted during this project. Reports by Archaeo-Info in the Matlakala and Jane Furse districts and studies done by J.H.N. Loubser concerning Basotho/Bapedi history of the Northern Transvaal were found relevant. Various publications on Iron Age communities (especially Late Iron Age iron production) were also consulted. These reports and studies assisted the investigators in the compilation and completion of this report.

6. Methodology

The study areas were surveyed using standard archaeological surveying methods. The areas were surveyed by vehicle and by foot moving in transects, which resulted in the maximum coverage of the study area. Indicators, such as surface finds, plant growth anomalies and topography were used in identifying sites of possible archaeological importance. Locals were also questioned and especially information on the location and identification of graves were required. Test probes were done at intervals to determine sub-surface occurrence of archaeological material.

Standard archaeological documentation formats were employed in the description of sites. Using standard site documentation forms as comparable medium, it enabled the investigators to evaluate the relative importance of the sites found. All archaeological artefacts and the sites were photographically documented (Canon A1 SLR and Ricoh KR 10 SLR).

Furthermore, GPS (Global Positioning System) readings of all finds and sites were taken. This information was gathered using a *Magellan 2000 XL GPS* (co-ordinate system - WGS 84).

The importance of finds and sites was assessed by comparisons with published information as well as comparative collections. All sites or possible sites found were classified using a hierarchical system wherein sites were assessed using a scale of one to five on the basis of their importance (graves form their own category). The categories are as follows:

Category 1. Sites in this category are of such great international and/or national importance in terms of cultural heritage that they can not be disturbed or altered at any cost. No development will be allowed in such an area. It should be noted that sites in this category are very rare - e.g.. - *Great*

Zimbabwe, Swartkrans, Mapungubwe

Category 2. Although these sites are not unique in terms of their culture they are of such archaeological value that any decision concerning their destruction can only be taken after full scale excavations have been undertaken - e.g. -

Thulamela.

Category 3. These sites are of lesser importance than the first two categories, but should be fully documented before they are destroyed. This documentation would entail the excavation of certain parts of the site - e.g. - *Masorini*

Category 4. Sites in this category consist of scattered evidence of archaeological occupation. Sometimes dilapidated stone walling can occur. Surface scatters of cultural material are evident. A limited number of test trenches should be excavated in order that the cultural affinity and importance of the site can be established.

Category 5. Areas that consist only of a very loose scattering of cultural material on the surface. No structures are visible and little archaeological deposits are evident. The occurrence of cultural material could, for example, be due to erosion. Apart from the surface collection of cultural material, no further work needs be done on such sites.

NB: It is important that any archaeological site should be monitored during construction.

Category 6: Graves. The only archaeological aspect that could still be encountered during construction is the exposure of unmarked graves.

It should be noted that graves are subjects of great sensitivity and should be treated as such. Prompt and correct procedures will eliminate possible embarrassing situations for the developer.

7. Site Descriptions

The results of the survey and the description of the sites will be discussed in the following section. Each area will be discussed separately and sites recorded in each area will be discussed accordingly. Sites were attributed a reference code which consisted of an abbreviation of the proposed development (i.e. Maandagshoek Tailings Dam - MTD) and a numerical indicator which was attributed randomly. GPS co-ordinates were given for each site, as well as a short description.

7.1 Area 1

Site Description:

Site name: Maandagshoek Tailings Dam

Site size: ± 200 hectares

Farm: Onverwacht

7.1.1 MTD 001

GPS 24° 38' 32" S

30° 09' 02" E

Description:

A small graveyard (photo 1) covering approximately 30 x 30 metres was found on the northern side of the mountain in densely overgrown bush with Sicklebush and Sweetthorn dominant. The graveyard was situated on the western side of the proposed dam wall for the Tailings Dam. The graveyard will be covered by the dam wall or will be affected by the construction of the dam wall.

The graveyard consisted of 35 identifiable graves, positioned randomly with no specific layout or chronology. Most of the graves were only represented with a dressing, which consisted of an elongated oval shaped line of packed stones. A larger stone represented the headstone of the grave. The other

graves had cement constructed dressings with manufactured headstones (photo 2). Some degree of maintenance was performed on the graves recently, as was evident with recent bush clearing and a newly constructed dressing on one of the graves and the fencing around this grave. Grave goods consisted of bottles, cups, plates, broken glassware, broken earthenware, tins and various other iron objects, which were indicative of the family members still visiting the graves and paying their respects to the deceased. Potsherds were lying around the graveyard, but they were most probably washed down during the rains or scattered by family members visiting the graves.

The following is a list of the graves with inscriptions on the headstones. These graves all had rectangular cemented dressings with inscripted headstones:

1. Lepala Maroga: † 1963
2. Sabalala Maroga: † 1970
3. Pabala Maroga: † 1963

These graves were situated at the eastern side of the graveyard and probably belong to one family. This part of the graveyard was actually separated from the rest of the graves with its own entrance to the north through the bush.

4. Makgaka Ntshi Mabihane: † 1950
5. Serurutlane Maretebale Nkwana: ★ 1925-04-12
† 1955-07-01
- 1955-07-02

This grave was redressed and fenced later and the earlier dressing was disposed of on top of a nearby grave.

6. Tomasi Yuma: ★ 190(?)
† 1968-06-03
7. Kresi Beti Yuma: ★ 1919
† 1961-02-01
8. Madumelane Karilina Matebula: (?)
9. Annah Malaji: † 1974-07-11
10. Not distinguishable

7.1.2 MTD 002

GPS: 24° 38' 32" S

30° 09' 02" E

Description:

Directly west of the above-mentioned graveyard a few scattered stone tools were collected. These stone tools were found in an eroded open area with no grass or bush covering (photo 3). The area measured approximately 20 m x 40 m and the eroded area continued northwards down the slope of the mountain. The low-density scatter produced cores, scrapers and flakes belonging to the latter part of the Middle Stone Age (M.S.A.) and Late Stone Age (L.S.A.).

The following documented sites formed part of a continuing line of occupation on the northern foot of the mountain. This linear occupational area extended from the western bank of the proposed dam wall eastwards up to the first big donga complex located approximately in the middle of the proposed Tailings Dam.

7.1.3 MTD 003

GPS: 24° 38' 38" S

30° 08' 55" E

Description:

On the western extreme of the proposed dam wall a few dilapidated square structures were found (photo 4). The structures formed a unit, which consisted of three separate square rooms with interconnecting walls. A wall on the northern side formed a courtyard of approximately 10m x 5m divided into two sections. All of these walls and structures were constructed of home-made mud bricks. A few cement slabs were found inside the courtyard as well as modern artefacts like iron objects and broken glassware. To the east of the homestead, stone walls forming three enclosures were found. These

enclosures probably served as cattle and goat pens for the cattle and goats, which belonged to the occupants of the structures.

7.1.4 MTD 004

GPS: 24° 38' 39" S

30° 09' 01" E

Description:

The remains of the foundations of a square structure measuring approximately 5m x 4m were found (photo 5). A single line of stones formed the foundation of the structure. A stepping stone to the west indicated the entrance to the structure. Several terraces were found around the structure with small stretches of walling keeping the terraces intact. Possible cattle byres and goat pens were also evident. More dilapidated mud brick structures were found to the east of the first structure. Possible graves around the structures.

7.1.5 MTD 005

GPS: 24° 38' 47" S

30° 08' 49" E

Description:

This site comprised of a single room square building constructed of a single line of packed flat stones (photo 6). The walls measured at least 2 metres high. The structure measured approximately 4 m x 8 m with an entrance facing north and with windows facing in the other directions. The structure had a clay floor and a courtyard extending to the north. Two mud brick structures were found to the west of the main structure and two smaller stone buildings within the courtyard. Further northwards another wall constructed of mud bricks indicated the extent of the yard of the structures within. Several trees around the structures could possibly indicate the presence of graves although it was impossible to investigate due to the dense plant growth.

7.1.6 MTD 006

GPS: 24° 38' 53" S
30° 08' 58" E

Description:

Another occupational unit, which consisted of three dilapidated mud brick structures situated in an open clearing with lush grass cover, was found. This occupational unit also had a courtyard and a low, outer stonewall (photo 7). A small dirt track coming from the north-west led straight to the structures.

7.1.7 MTD 007

GPS: 24° 38' 55" S
30° 09' 00" E

Description:

The remains of two structures were found. The structures were square in shape and were constructed of mud bricks. A courtyard extended northwards from the structures and on the western side of the courtyard, the remains of a small kitchen or cookhouse were found. A low stonewall with an entrance to the north indicated the extent of the yard. Several modern artefacts like iron objects, glassware and rubber were also found on the site.

7.1.8 MTD 008

GPS: 24° 38' 59" S
30° 09' 01" E

Description:

A complex of dongas (photo 8) situated approximately in the middle of the proposed Tailing Dam exposed a low-density scatter of stone tools. These stone tools were exposed in almost every donga, as well as from the top end all along the donga to the bottom end of each donga. The stone tools collected

ranged from cores, scrapers, flakes and blades and originated from the latter part of the Middle Stone Age and the Late Stone Age (photo 9).

7.1.9 MTD 009

GPS: 24° 38' 48" S
30° 09' 03" E

Description:

An isolated scatter of iron slag was found in a track just west of the big donga complex near the middle of the proposed Tailing Dam. Slag scatters were found to cover an area of approximately 50 m x 50 m. A small amount of potsherds were also found. No further evidence of iron smelting/forging such as ash deposits, large concentrations of slag, tuyères or any furnace clay fragments were found.

7.2 Area 2

Site Description:

Site name: Maandagshoek Concentrator Plant Site

Site size: 25 hectares

Farm: Onverwacht

7.2.1 MCP 001

GPS: 24° 38' 51" S
30° 07' 46" E

Description:

Although the small hill (koppie) was purposely excluded from the proposed Concentrator plant Site, the investigator surveyed the koppie in an effort to determine possible archaeological activities on the koppies, which might have influenced finds or sites situated in the proposed area. An iron smelting site

was found situated on the koppie (photo 10). A fair amount of slag was found on top within the eroding deposit (photo 11). Slag was washed down the slopes of the koppie and it made the distribution of slag wider than was actually the case.

The deposit on the summit of the koppie contained slag and ash, which were indicative of iron smelting. Although a lot of damage was caused to the archaeological deposit by erosion, it was still significant enough to determine the function and importance of this site. The south-western part of the summit of the koppie (photo 12) contained the largest amount of slag and ash with deposits going down to \pm 20 cm deep (photo 13). Tuyères and furnace clay fragments (photo 14) were found, which indicated the presence of a furnace(s). Due to the overgrown nature of the summit, it was impossible to identify the exact location of the furnace. It is also possible that more than one furnace could be present. Very few potsherds were collected and no diagnostic potsherds were found (photo 15), which made it difficult to determine the site's affinity and chronological age.

Finds on the northern side of the koppie, which fell within the proposed Concentrator Plant site were all related to the iron working activities which took place on the koppie. Finds down on the flats included slag and tuyère fragments, but the amounts were so small that they could only be related to the activities on the koppie and happened to be washed down the slopes of the koppie.

7.2.2 MCP 002

GPS: 24° 38' 47" S

30° 07' 58" E

Description:

A small scattering of potsherds (no diagnostic sherds) were found in a clearing down in the flats of the valley (photo 16). This isolated find was made in an

area where the natural bedrock was protruding from the surface. Two small pieces of slag were also found, but no other archaeological evidence was noticed.

7.2.3 MCP 003

GPS: 24° 38' 53" S
30° 07' 49" E

Description:

After an interview with an informant, Enos Mohlala, he indicated that three graves were present just to the west of the small koppie, which was excluded from the proposed Concentrator Plant Site. The investigators were of the opinion that these graves might also fall outside the proposed Plant Site, but felt that it was worth mentioning. According to the informant these graves were very old and were there before he was born (him being an old man) which adds archaeological value to the graves.

The graves were found near a big Maroela tree to the west of the koppie. The graves were found within a radius of 10 metres from each other. Two of the graves had dressings, which consisted of packed stone ovals (photo 17) and the third grave had a packed stone cross as a dressing.

7.2.4 MCP 004

GPS: 24° 38' 34" S
30° 07' 43" E

Description:

Stone tools were found on the eroded banks of a donga as well as in the donga itself. The donga runs approximately west to east across the proposed site and stone tools were found in small scatters all along the donga. The stone tools

collected ranged from the latter part of the Middle Stone Age to the Late Stone Age and included cores, scrapers, flakes and blades.

7.2.5 MCP 005

GPS: 24° 37' 51" S
30° 07' 44" E

Description:

The remains of a dilapidated homestead were found on the southern slope of a mountain (photo 18). The investigators were not sure if this still fell inside the proposed Concentrator Plant site, or just outside the northern extend of the proposed area. The remains of three dilapidated square mud brick structures with a courtyard and outer stonewall were recorded.

7.2.6 MCP 006

GPS: 24° 37' 57" S
30° 07' 46" E

Description:

An informant, George Tshoolo, pointed out a small graveyard just south of the above mentioned structures. The graveyard had five well attended graves with four of the graves laying next to each other and the fifth grave positioned at the foot of one of the other graves (photo 19). Three of the graves had cement constructed dressings with engraved headstones. The other two graves were covered with stones packed in an oval.

The engravings on the three headstones were as following:

1. Maditau Frans Ngele: † 1956-09-24
2. Malete Bettie Mohlala: † 1973-11-17
3. Sagobo Florar Mohlala: ★ 1953-05-03
† 1974-06-24

7.3 Area 3

Site description:

Site name: Concentrator Plant Site Mine Shaft (Maandagshoek Southern Shaft)

Site size: ± 9 hectares

Farm: Onverwacht

The following three sites formed part of the extended linear village described in the report of 27 August 1999 titled "Preliminary Archaeological Impact Assessment, Maandagshoek and Onverwacht Proposed Survey and Access Routes" under the heading "7.4 Area 4", which covered the P.A.I.A. of the Onverwacht/Winterveld Access Road.

7.3.1 MSS 001

GPS: 24° 39' 02" S

30° 08' 12" E

Description:

The investigations started from the southern boundary of the proposed mine shaft area. Signs of occupation were seen and documented here. The site was covered with extensive scalloped stonewalling running east to west to form a boundary on the southern side, which extended and turned northwards to form a large enclosure (40 m x 60 m) with several smaller walls and smaller enclosures within (photo 20). Aloes, Sisal and Naboom were abundant in and around the large enclosure. The outer wall measured approximately one metre in height and 75 cm in width. Dilapidated structures were found inside the big enclosure and further north various other occupational sites were also found. These all formed part of the linear village on the foot of the mountain. Several graves might be present here but due to the thick plant growth it was impossible to identify any.

7.3.2 MSS 002

GPS: 24° 38'59" S
30° 08' 13" E

Description:

At least three possible graves were identified on the western side of the small track passing through the proposed site. The graves were identified by stones packed in elongated ovals, which served as dressings for the graves (photo 21). The graves most probably belonged to the occupants of the linear village on the foot of the mountain. A dilapidated mud brick structure was found in a clearing across the small track from the graves. Various short stretches of interconnecting walls and low stone walling were also found. The graves encountered most probably belonged to the previous occupants of the dilapidated structures.

7.3.3 MSS 003

GPS: 24° 39' 00" S
30° 08' 11" E

Description:

The remains of a dilapidated mud brick complex were encountered next to the track (photo 22). Four separated buildings, each with its own courtyard, were found adjacent to each other. Walls between the structures connected them to each other and so forming a unit. The buildings as well as the courtyards were square in shape, which was indicative of their recent origin. The stone walling on the perimeter established the extent of the stand.

7.3.4 MSS 004

GPS: 24° 38' 45" S
30° 08' 16" E

Description:

Iron slag was found at the northern extent of the proposed mine shaft site (photo 23). Iron workings probably occurred higher up the slope and the scatters of slag found were probably washed down the slope of the mountain. No other indications of iron workings were found in the immediate vicinity. These finds could be connected to the finds made during the previous investigations (see "Preliminary Archaeological Impact Assessment, Maandagshoek and Onverwacht Proposed Survey and Access Routes" under heading "7.1 Area I" - Onverwacht Reef Road).

7.4 Area 4**Site description:**

Site name: Village Mine Shaft (Northern Mine Shaft)

Site size: ± 9 hectares

Farms: Maandagshoek and Hendriksplaats

Two possible sites were identified for the proposed Village Mine Shaft. The map indicated the first possible site as M-01 which will be described in this report as Maandagshoek Northern Shaft I and the second possible site as M-03 which will be described in this report as Maandagshoek Northern Shaft II.

7.4.1 Maandagshoek Northern Shaft I

(a) MINS I 001

GPS: 24° 36' 19" S

30° 06' 44" E

Description:

Although the graveyard with over 100 graves falls outside the proposed site, the investigators still felt it was necessary to mention it (photo 24). These graves might be in the way when it is decided to extent construction and

activities on this site. This graveyard is the community graveyard and is well kept, visited and used by the community from the village.

7.4.2 Maandagshoek Northern Shaft II

(a) MNS II 001

GPS: 24° 37' 10" S

30° 07' 36" E

Description:

This site might be just outside the eastern boundary of the proposed Mine Shaft Site. The remains of at least five different sun-dried mud brick structures were found with courtyards extending south and west (photo 25). The site measured approximately 30 m x 30 m. A single grave was found 20 m east at the back of the dilapidated structures (photo 26). The grave had a cemented dressing with an inscribed headstone. The inscription was as follows:

Modibi Poul Mohlabi: † 1981-02-15

Other signs of occupation were found further east and further up the slope of the mountain, but these fall well outside the propose Mine Shaft Site.

7.5 Area 5

Site description:

Site names: Access and Haulage roads

Site size: ± 11 km

Farms: Hendriksplaats, Onverwacht, Maandagshoek

The roads were surveyed in three sections:

1. Tar road (R37) to the Amplats Project Office complex.
2. Amplats Project Office complex to Concentrator Plant Site.

3. Concentrator Plant Site to Village Mine Shaft (Mandagshoek Northern Shaft II).

7.5.1 Tar road to Office complex

Description:

The existing road will only be upgraded and nothing of any archaeological value was found on this stretch of road.

7.5.2 Office Complex to Concentrator Plant

Mandagshoek Access Road II

(a) MAR II 001

GPS: 24° 37' 48" S
30° 08' 49" E

Description:

The remains of a complex of dilapidated huts were found. At least three structures were identified with short stretches of terrace walling around the complex. There is a possibility that graves may be in the way of the proposed access road.

(b) MAR II 002

GPS: 24° 38' 04" S
30° 08' 41" E

Description:

The remains of an occupational complex consisting of three structures, courtyard and an outer stone wall were found. Recent artefacts such as broken chinaware, tins and glassware were found on the site.

7.5.3 Concentrator Plant to Northern Shaft

Signs of occupation were identified higher up on the slopes of the mountain.

The route that the investigators followed did not show any evidence of archaeological value but it is possible that graves could be situated on the proposed route. The investigators interviewed several people, but none were aware of any graves on the proposed route.

8. Interpretation and Recommendations

Recommendations were given for each of the sites as outlined in the site descriptions. Each of the sites were attributed a category as described in the section on methodology and descriptions of the work to be done, were given.

8.1 Area 1

8.1.1 MTD 001

Category 6

The graveyard in question was used and visited by the occupants of the dilapidated structures found further on, on the northern foot of the mountain. The graveyard will be affected by the construction of the wall for the proposed Tailings Dam, as it is situated on the western side of the proposed dam.

Some of the graves were identified, but most of them had no inscriptions or engravings to connect them with their families. It is essential that the families of the deceased be identified and notified of the proposed construction. The Social Consultant involved in the project is best suited to identify these families and inform them on the proposed development at an early stage to avoid any misunderstandings concerning these graves.

Archaeo-Info recommends that the wall of the proposed Tailings should move further east to avoid the graveyard and to exclude it from the areas needed for construction purposes. The safest way is to fence it off and in so making it a

no-go area for construction vehicles to avoid possible damages to the graves.

A gate in the fence will provide free access to the families of the deceased to visit the graveyard and to pay their respects.

If it is not possible to move the proposed Tailings Dam further east, the exhumation and reinterment of the skeletal remains should be negotiated with the involved families. The removal and reinterment of skeletal remains is a very sensitive issue, which should be handled in a very respectful manner. Legislation on exhumations and reinterments are very strict and involves several governmental departments (National and Provincial). The process to receive permission for the exhumation and reinterment of skeletal remains is complex and lengthy. Archaeo-Info, in conjunction with the project's Social Consultant, can apply for permission for the exhumation and reinterment of the skeletal remains at the various government departments and perform the exhumations and reinterments in a correct and sensitive manner.

None of the identified graves with inscriptions or engravings fall within Act 25 of 1999 and it would not be necessary to apply for a permit as issued by the South African Heritage Resources Agency (previously the National Monuments Council). The graves with no inscriptions must be identified to see if they fall within Act 25 of 1999 before they can be altered, exhumed and reentered in a newly allocated graveyard. See also Addendum B.

8.1.2 MTD 002

Category 5

The low-density scatter of stone tools identified in the eroded clearing produced cores, scrapers and flakes belonging to the Middle Stone Age and the Late Stone Age. The amount of stone tools found does not constitute a site of archaeological importance. Other eroded areas outside the proposed Tailings Dam produced the same amount of stone tools, which will not be affected by the dam. No further archaeological work is recommended.

8.1.3 MTD 003, MTD 004, MTD 005, MTD 006, MTD 007

Category 5

These sites shared the same characteristics and features. Although they have different GPS readings they all formed part of one elongated linear village on the northern foot of the mountain. These sites will be interpreted as a unit and recommendations will be given for the sites as a unit.

Several dilapidated homesteads or family units were identified on the northern foot of the mountain. These homesteads shared similar characteristics. Most of them consisted of a few structures with interconnecting walls. The buildings were square and constructed of sun-dried mud bricks. Courtyards formed part of the interconnecting walls and within some of the courtyards small cooking huts/structures (kitchens) were identified. The buildings and courtyards varied in size but the pattern was similar. An outer boundary, normally constructed of rocks forming a stone wall, indicated the extent of the yard/stand. Modern artefacts like fragments of plastic-ware, tins, cutlery, rusted iron objects and broken glassware were found in and around these homesteads. During the previous investigations in 1999 informants told the researchers that the community of the extended village was moved in the 1960's with other communities and resettled somewhere else. Due to its recent origin from within the last 60 years, these sites are of little or no archaeological value and no further archaeological work is recommended. It is still possible, however, that some of these sites may have graves in their close proximity. These graves will have to be identified with the help of the original occupants of the village in order to determine future action (i.e. exhumation and reinterment). See also Addendum B.

8.1.4 MTD 008

Category 5

Low density scatters of stone tools originating from the Middle Stone Age and the Late Stone Age were identified all along a complex of dongas. These scatters were also found outside the proposed location for the Tailings Dam. Due to the large extent of erosion, which occurred during the years, it was

impossible to relocate these stone tools to their original positions. The amount of stone tools and concentrations found did not constitute a site of archaeological value and no further work is recommended. The possibility of any stone tool production site within the proposed Tailings Dam was investigated and if a production site (or any Stone Age site of archaeological value) did exist, it was outside the proposed development and will not be affected by it.

8.1.5 MTD 009

Category 5

The small amount of slag and potsherds found and the lack of any other artefacts like tuyères and furnace clay, indicated the relative low archaeological value of this site. Bigger concentrations of slag, tuyères and potsherds were found during the 1999 investigations \pm 800 m further to the west. The finds of this site may originate from the site found in 1999. The recommendations for the site found in 1999 were adhered to by the client and no damage was caused by their development. No further work is recommended for this site.

8.2 Area 2

8.2.1 MCP 001

Category 3

The location of an iron smelting site on top of this small koppie falls well in with the generally accepted models and perceptions of iron working in the prehistory of Southern Africa. The koppie is isolated and provided a great deal of privacy to the iron smelters. This was necessary because iron smelting was associated with the process of procreation in which taboos, secrecy and magical rituals and practices played an important role from which women and children were excluded (Huffman 1993; Stayt 1968). The location of the koppie near water and the settlement on a hill nearby made it perfect for the production of iron.

These practises were associated with the Late Iron Age communities of Southern Africa who occupied South Africa mostly during the latter half of the last millennium (Hall 1987).

The iron smelting site on the koppie was excluded from the proposed Concentrator Plant site and will not be affected by the construction and operation of the Concentrator Plant. No further archaeological work is recommended for the site with the development as it is presently planned. It is important to note that any further development, which might include the small hill, will have an affect on the smelting site and cannot continue before proper archaeological mitigationary measures are performed.

8.2.2 MCP 002

Category 5

These isolated finds of potsherds and slag were not enough to constitute an archaeological site of any importance. No further work is recommended.

8.2.3 MCP 003

Category 6

These graves are protected under Act 25 of 1999. According to the provided map the graves will fall outside the proposed Concentrator Plant site. It is important to take note of these graves and not to damage them during clearing, construction or any extended development in the future. If the client feels that the graves are in the way of their proposed development, mitigationary measures will have to be taken to remove them (See Addendum B). At this stage no further work is recommended.

8.2.4 MCP 004

Category 5

Stone tools originating from the Middle Stone Age and the Late Stone Age were collected in dongas criss-crossing the proposed Concentrator Plant Site.

The low density of the scatters and the amount of stone tools found do not constitute a site of archaeological value. This site showed the same characteristics as those in the proposed Tailings Dam and sites outside the proposed Concentrator Plant Site. No further archaeological work is recommended.

8.2.5 MCP 005 and MCP 006

Category 5 and Category 6

The investigators were not sure if these two sites were situated inside the proposed Concentrator Plant Site. MCP 005 was the remains of a homestead, which formed part of an extended settlement on the southern slope of the mountain. MCP 006 was a small graveyard, which belonged to the occupants of MCP 005. No further work is recommended for MCP 005, but the graveyard (MCP 006) should be fenced off to protect the graves from any damage during construction and operations, if they were found to be inside the proposed site. If the graves are found to be in the way of construction or the development, they should be handled in the same manner as MTD 001 (See Addendum B).

8.3 Area 3

The interpretations and the recommendations for the following three sites are the same as those described in 8.1 (MTD 003, MTD 004, MTD 005, MTD 006, MTD 007). These sites formed part of an extended linear village described in "Preliminary Archaeological Impact Assessment, Mandagshoek and Onverwacht Proposed Survey and Access Routes" under the heading Onverwacht/Winterveld Access Road.

8.3.1 MSS 001, MSS 002, MSS 003

Category 5 & Category 6

The remains of dilapidated homesteads and structures were found. These formed part of an extended linear village, which was situated on the western

slopes of a mountain. A small track connected these homesteads and it lead to the farm Winterveld where it connected up to newly constructed dirt roads. Due to the recent origin of the homesteads and structures these sites have very little archaeological value. The sites, however, do have graves, which will have to be identified with the help of the original occupants in order not to damage them during the development. If it is not possible to avoid any of these graves, see Addendum B for further action. No further archaeological work is necessary on these sites.

8.3.2 MSS 004

Category 5

These isolated finds of iron slag could be connected to possible iron smelting/forging activities identified during the 1999 investigations. Evidence of iron working activities were described in the report "Preliminary Archaeological Impact Assessment, Mandagshoek and Onverwacht Proposed Survey and Access Routes" under heading "7.1 Area 1" and were found 400 m further north and east, higher up on the mountain slopes. The developer has adhered to the recommendations of the previous report not to damage the archaeological remains, which will not be affected by the development of the proposed Concentrator Plant Site Mine Shaft. No further archaeological work is recommended.

8.4 Area 4

8.4.1 MNS I 001

Category 6

The community graveyard identified next to the proposed Mine Shaft Site should be avoided at all costs. The public outcry and the mitigationary measures to deal with a graveyard of this size will be immense and not even worth negotiating. Reluctance from the community and the time and costs involved, if the graveyard will be affected by the proposed development, will be huge if some of the graves will have to be moved.

8.4.2 MNS II 001

Category 5 & Category 6

This site formed part of a settlement on the western slopes of the mountain. The occupants were removed from this area and were resettled in the Maandagshoek community in the 1960's. The site has no archaeological value and no further work is recommended. The one identified grave must be avoided, but if not possible, it should be relocated (see Addendum B for further action).

8.5 Area 5

8.5.1 Tar road to Office complex

Nothing of any archaeological value was found and no further archaeological work is recommended.

8.5.2 Office Complex to Concentrator Plant, MAR II 001 & MAR II 002

Category 5 & Category 6

These two sites formed part of a settlement on the eastern slopes of the mountain. This settlement was the same as other settlements discussed in this report. The occupants were removed from the area in the 1960's and were resettled amongst the Maandagshoek community. Due to the recent nature of the structures and features no further archaeological work is necessary. There is a possibility that graves may be in the way of the proposed access road. These graves should be identified with the help of the original occupants and efforts made to avoid them during the construction of the proposed road. If it is not possible to avoid them, see Addendum B for further action.

8.5.3 Concentrator Plant to Northern Shaft

Nothing of archaeological value was found and no further archaeological work is recommended.

9. Conclusion

Five proposed sites for development in the Maandagshoek area underwent detailed archaeological investigations. Findings in each of the sites were evaluated and recommendations were given for further action.

Minor archaeological finds were made in each of the different areas. Stone tools were collected in eroded dongas, but the finds were not significant enough to warrant any further archaeological work. Scatters of stone tools were found outside the proposed sites as well, which were similar to those scatters found inside the proposed sites for development.

Extensive sites of recent occupation were found in all of the investigated areas. These settlements were evacuated during the 1960's and the occupants were resettled amongst the Maandagshoek communities. The remains of the settlements were of little archaeological value and none of these sites needed further archaeological attention or work.

The recent settlements, however, do have graves and small graveyards in their close proximity. The graves will have to be identified. The project's Social Consultant is best suited to identify the families of the deceased. These families can pinpoint individual graves amongst the evacuated settlements, from where decisions can be made which graves must be moved and which can stay.

The exhumation and reinterment of skeletal remains are a very sensitive and complex process. If any graves will have to be moved, negotiations with the involved families and other interested parties should start at an early stage of the project to prevent any delays during the development. Archaeo-Info can assist in the legal applications and perform the exhumations and reinterments in a correct and sensitive manner.

The iron smelting site on a small koppie just south of the proposed concentrator Plant Site should not be tampered with. The koppie was

excluded from the proposed site, but should not be included in possible future developments in order to protect this iron smelting site.

From an archaeological point of view the development of the proposed sites can continue. Special attention must be given to the identified graves and the further identification of other graves in order to handle and negotiate the moving of graves in a correct manner. Procedures for the handling of graves are discussed in Addendum B.

10. References

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