



Archaetnos Culture & Cultural
Resource Consultants
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**A REPORT ON ARCHAEOLOGICAL PHASE 2 MITIGATION OF AN
EARLY FARMER SITE TO BE IMPACTED ON BY THE DEVELOPMENT
OF THE ZANDSPRUIT ECO ESTATE ON THE FARM HAPPYLAND 241 KT
HOEDSPRUIT, LIMPOPO PROVINCE**

For:

**ZANDSPRUIT ESTATES
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REPORT: AE832

Work conducted: **July 2008** Date of report: **November 2008**

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SUMMARY

Archaetnos cc was requested by Zandspruit Eco-Estates to carry out the 2nd Phase archaeological mitigation of an Early Farmer site located on the farm Happyland 241 KT near Hoedspruit. This work was the result of recommendations put forward in a Phase 1 Heritage Impact Assessment conducted by Archaeo-Info Northern Province (AINP) during 2007. Based on the findings reported in their document, it was recommended that the development can continue on condition that mitigation measures are implemented. These measures included archaeological excavations and the mapping and drawing of the site and excavations. SAHRA supported these recommendations in their Review Comment in March 2008. Initial identification of the site as belonging to the Eiland/Letaba facies of the Iron Age was based on scatters of decorated pottery found on the site.

After a permit was obtained from SAHRA, archaeological investigations at the site commenced during July 2008 for a two week period. Four excavations were conducted on selected areas on the site, while mapping and drawing was also conducted. A more detailed survey of the site and area was also undertaken, identifying and recording more features and scatters of cultural material. A large amount of cultural material, including pottery, faunal remains and shell was recovered during this work. The remains of at least three humans were also uncovered in the process. The largest portion of the pottery (decorated) sample indicated that the site belongs in the main to the Doornkop facies of the Early Iron Age, although some Mzonjani facies pottery was also recovered.

We believe that the work conducted, and the data retrieved through it, during July 2008 was adequate enough to enable us to make the necessary deductions and reconstructions. Therefore it is recommended that the development can continue, although certain conditions are put forward in the final conclusions and recommendations.

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INTRODUCTION

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After a permit was obtained from SAHRA, archaeological investigations at the site commenced during July 2008 for a two week period. Four excavations were conducted on selected areas on the site, while mapping and drawing was also conducted. A more detailed survey of the site and area was also undertaken, identifying and recording more features and scatters of cultural material. A large amount of cultural material, including pottery, faunal remains and shell was recovered during this work. The remains of three humans were also uncovered in the process.

AIMS

The aims of the archaeological investigation of Site ZEE 01 were the following:

- (a) to determine the depth and extent of the archaeological deposit
- (b) to determine the furthest extent of the occupied area through the surveying of surface deposits and features
- (c) to determine possible cultural affiliation, occupational time-frame, settlement organization and domestic economy
- (d) the excavations of features and the documentation of cultural material and features
- (e) the proper curation of the material in a local institution. In this case the Lydenburg Museum was identified and will be responsible for the curation of the archaeological sample

We were informed by the client about the extent of the area that will be affected by the proposed development. The work was confined to this area.

LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are mainly dealt with in two acts. These are the South African Heritage Resources Act (Act 25 of 1999) and the Environmental Conservation Act (Act 73 of 1989).

South African Heritage Resources Act

Archaeology, palaeontology and meteorites

Section 35(4) of this act states that no person may, without a permit issued by the responsible heritage resources authority:

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- (e) alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency.

The National Environmental Management Act

This act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

METHODOLOGY

Documentation

The documentation comprised the following:

Archaeological Excavations

The archaeological excavations comprised four excavation squares in predetermined areas on the site. Combined, approximately 65 square meters of the site was excavated.

Photographic - Photo's of all excavations and features were taken, while individual objects were also photographed for record purposes.

GPS Data - A GPS reading for the site, as well as individual features and excavations, was taken in order to locate it on a map of the area.

Mapping & Drawing

The fieldwork also included physical mapping of the excavations and features with a theodolite, as well as the producing of detailed excavation drawings where deemed necessary. The site and larger area was also surveyed, and all surface features, surface scatters of cultural material and other indications of occupation was GPS'ed and located on a Google Image of the site.

Analysis & Documentation/Curation of cultural material

This normally includes the cleaning and sorting of all material recovered during the excavations, as well as the expert analysis of ceramics, faunal remains and other material cultural remains. The final curation of the material will be handled by a recognized cultural institution, in this case the Lydenburg Museum in Lydenburg.

DESCRIPTION OF THE AREA AND SITE

The proposed Eco-Estate development site is located on the farm Happyland 241 KT, in the Mopani District Municipality of the Limpopo Province. The closest town, Hoedspruit, is situated approximately 1km from the site, while the site is located on the eastern side of the R527 (See **Appendix I**). The establishment of a residential, commercial and retail development with associated infrastructure, to be referred to as the Zandspruit Estates, is proposed.

The development area encompasses around 948 ha. Its southern boundary is demarcated by the Sandspruit River. The whole farm is situated on an alluvial plain with sandy soil predominant. The topography of the area is flat, sloping gently down towards the river on the southern side.

Site ZEE001 is located on the eastern side of an existing landing strip along the middle of the runway (this landing strip will also be upgraded as part of the whole development). However, after more careful surveying of the area it is clear that the archaeological site is located on both sides of the landing strip and along the horseshoe bend of the river, covering a far more substantial area than initially thought. The site is poorly defined on the surface and only the occurrence of ashy concentrations as well as numerous pottery scatters and upper and lower grinders indicate the presence of the site.

DISCUSSIONS

Excavation 1

Excavation 1 (**Fig. 1**) was a 5m x 4m (E/W x N/S) excavation on an area with a fairly substantial scatter of decorated pottery (**Fig. 2**) and a slight mound. It was initially thought that this mound might represent a hut or other feature such as raised granary. Although some, mostly undecorated, pottery and small fragments of bones (faunal remains) were recovered from the excavation, no evidence of a dwelling or other feature was uncovered. Other cultural material recovered from the excavation included small pieces of shell (achatina and freshwater mussel) and some pieces of metal slag (possibly copper).

Sterile soil was reached at a depth of between 10 – 18cm (north – south) at the deepest. A very thin layer of soft, sandy, soil formed the top surface of the excavation, with the rest of the excavation characterized by fairly hard, light to dark brown soil (**Fig.3**). After sterile soil was reached the excavation was abandoned.



Figure 1: Excavation 1



Figure 2: Some of the decorated pottery on the surface of Excavation 1



Figure 3: Excavation 1 complete. The soil was very hard, making the leveling of the excavation difficult

Excavation 2

Excavation 2 (**Fig.4**) was a 5m x 5m square, measured out on an area with an ashy deposit, some fragments of hut clay and a slight mound. The main aim of the excavation was to try and determine if the mound was the remains of a hut or similar feature or just an ash midden. Furthermore we wanted to recover as much cultural material as possible to help with the reconstruction of settlement organization, domestic economy, time-frame of settlement and possible cultural affiliation.

Very large amounts of decorated and undecorated pottery (**Fig.5**), faunal remains (identifiable and unidentifiable), shell (fragments of giant land snail and freshwater mussel) and shell beads, tortoise carapaces (**Fig. 6**), stone artifacts and two pit burials (**Fig.7-8**) were recovered. Furthermore, the remains of a collapsed (raised) grain bin were also found (**Fig.9-10**).

It is clear from the excavation that this feature probably represents an ash midden, although the collapsed grain bin uncovered is evidence of the area having a different function some time earlier. When the feature fell into disuse, the area was then used as midden. There is no clear stratigraphic break (natural or manmade) visible in the deposit, and it seems as if the midden and the cultural material recovered from it is representative of a single occupational horizon. However, some pottery from the excavation might be related to a somewhat later occupation. The decorated pottery from the excavation is in the main related to the Doornkop facies of the EIA, although some Mzonjani type pottery (earlier than Doornkop) is also in the sample. A number of individual (identifiable) vessels are present, and represent large cooking and storage vessels, as well as a variety of other functional types.

The two burials uncovered in Excavation 2 were both located in the northern wall of the square when the profile of the excavation was cleaned. Burial 1 was found near the north-western corner, while Burial 2 was located in the north-eastern corner. The first burial seems to have been in a pot that broke and fell-over sometime after burial. Burial 2 was in a pit with a number of stones placed in the burial to keep the remains “in tact”. The skeletal remains of both individuals were very fragile and seem to have been disturbed post-mortem to some degree. Some skeletal parts might not even be present in the sample due to a number of reasons. The burials belong to small infants and/or young juvenile members of the community. The skeletal remains will be discussed in detail later on in the document.

Faunal remains dominate the archaeological sample, with a fairly large percentage identifiable to species, size level, sex and age. A variety of skeletal (anatomical) parts were present in different areas of the excavation, possible evidence of different “slaughter” or “dumping” sessions. During the fieldwork, skeletal remains of a single (possibly) hippo was recovered, further evidence of a single episode of scavenging and slaughtering of a meat source. Other remains include that of different sized bovids and tortoises, while nearly complete shells of giant landsnail, freshwater mussel and other marine mollusks were also found. Fragments of the same, as well as a very large number of marine shell beads were also recovered. A small number of ostrich egg-shell (OES) beads are also present in the sample. The faunal remains will also be discussed in more depth later on in the document.

The material cultural remains from Excavation 2, as with those from the other excavations, will go a long way in helping us to understand the domestic economy of the inhabitants of the site during the time of their occupation of the area, as well as their settlement and social organization and the time-frame of occupation.



Figure 4: Excavation 2



Figure 5: In situ decorated Doornkop pottery from Excavation 2



Figure 6: In situ tortoise carapace. Four of these were found in different areas



Figure 7: Burial 1 from Excavation 2



Figure 8: Burial 2



Figure 9: Remains of collapsed granary visible under ashy deposit of Excavation 2



Figure 10: Remains of collapsed granary

Excavation 3

Excavation 3 (**Fig. 11**) was a 2m x 2m square, measured out on an area characterized by large amounts of pottery fragments (**Fig. 12**) and a clear ashy deposit.

Fairly large amounts of pottery and faunal remains were recovered from this excavation. The faunal remains were more fragmented than that of Excavation 2, although some identifiable bone was also recovered. The decorated pottery from Excavation 3 mostly belongs to the Mzonjani facies of the EIA, although some Doornkop type pottery were also found.

Large amounts of shell fragments (giant land snail and freshwater mussel) were found, including shell pendants and shell beads. Some of the beads have traces of red ochre staining. A few shells (complete specimens) might have a coastal origin. Stone beads and worked bone objects such as needles or awls were also recovered from Excavation 3.

Nodules of possible vitrified dung indicate that this could've been a cattle kraal, although this is difficult to substantiate at this moment. Sterile levels occurred at a depth of between 50 - 60cm below the present surface level [PSL. The stratigraphy of the excavation consist of between 5 & 10cm of loose, light brown, soil, approximately 30cm of greyish ash (containing most of the cultural material) and 20cm of red, hard soil (**Fig. 13**).



Figure 11: Excavation 3



Figure 12: Pottery found near Excavation 3

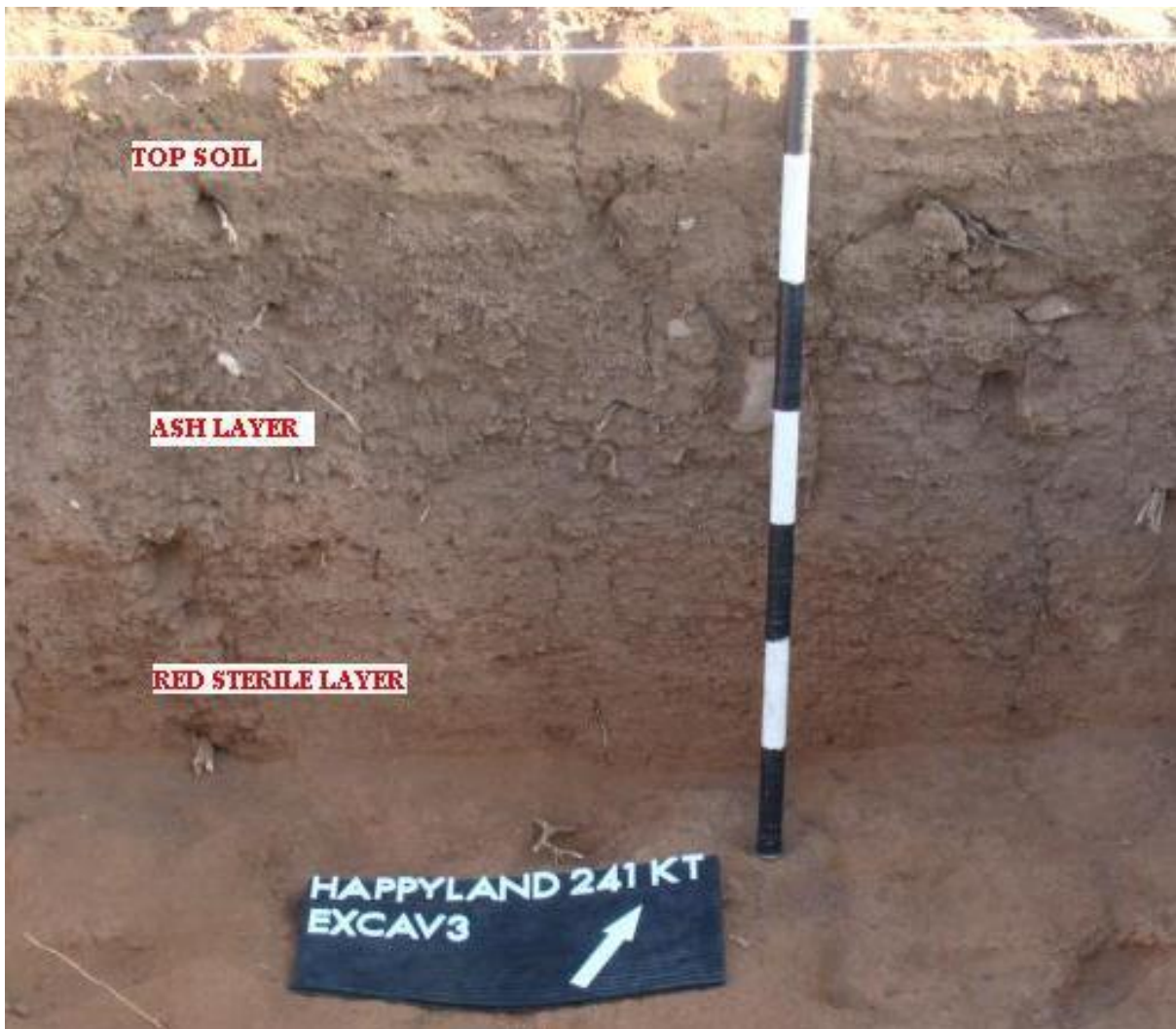


Figure 13: Stratigraphic layering in Excavation 3

Excavation 4

Excavation 4 was a 4m x 4m square (**Fig. 14**) measured out on an area a few hundred meters to the south of Excavation 2. The area contained some scatters of pottery and pieces of hut clay. The aim was to try and locate the remains of the possible hut or other clay built structure.

Very little cultural remains were recovered, although some pottery (mostly undecorated), faunal remains (mainly fragmented) and shell were found. No evidence of a hut (floor) or the collapsed clay and plaster walls of any kind of structure were uncovered in Excavation 4. Sterile soil was found at a depth of about 10 cm below the present surface level (psl).



Figure 14: Excavation 4

During the fieldwork we also did a more detailed survey of the site and surrounding area (see Appendix 1). All features found were recorded and photographed, and GPS readings taken in order to help with the site mapping and interpretation of the archaeology of the site. The site is much larger than initially thought, and covers an extensive area along the Sandspruit.

Features and cultural material scatters were recorded, and include scatters of pottery eroding out of the existing air strip (**Fig. 15**) because of sheet erosion, areas with hut clay and other cultural material (**Fig. 16**) upper and lower grinding stones (**Fig. 17**) as well as possible stone circles that enclosed huts or served as platforms for granaries (**Fig. 18**). Cultural material found around the area includes fragments of shell and shell beads, pieces of metal slag, faunal remains and soapstone artifacts (**Fig. 19**).

All the features and cultural material recorded, and the extent of the finds, is clear evidence of an extensive and complex settlement, utilized over a fairly long period of time. The settlement was also more “permanent” in nature as is shown by the remains of huts, granary stands and possible smelting activities.



Figure 15: Pottery eroding out of air strip



Figure 16: Hut clay and other cultural material exposed by sheet erosion



Figure 17: Lower grinder on the site – probably for sorghum



Figure 18: Area where granary stand or hut was located. Some hut rubble was found around the area



Figure 19: Part of a soapstone pendant found on the site

Cultural Material

Ceramics (Pottery)

Pottery was found in all the excavations and scattered all over the surface of the site. The total sample consisted of over 400 diagnostic (rim pieces and decorated) fragments, that produced 10 reconstructible vessels. These diagnostic fragments were used in the ceramic analysis (**for details on the Expert Ceramic Analysis see Appendix 3**).

The largest portion of the sample came from Excavations 2 & 3. The material recovered from the site is directly comparable with the results of a ceramic analysis done by Whitelaw (1996) on material recovered from the famous Lydenburg Heads site. He identified two distinct stylistic groups, with the material from Happyland Excavation 2 similar to his Group 2 and Excavation 3 to his Group 1. The ceramic sample from Excavations 1 & 4 was too small to be useful in this analysis.

The ceramic analysis for the Happyland archaeological site established the local culture history sequence of this multi-component site. First was the Group 1 ceramics (Mzonjani Pottery) from Excavation 3 dating to between AD 450 & AD 700. Mzonjani is the 2nd Phase, derived from Silver Leaves of the Kwale Branch of the Urewe Tradition. The pottery is characterized by key features like punctuates on the rim and spaced motifs on the shoulder of vessels.

The ceramics from Excavation 2 belong to Group 2 ceramics (Doornkop Pottery). Doornkop is a facies of the Happy Rest Branch of the Kalundu Tradition. This facies is dated elsewhere to between AD 750 and AD 1000. The pottery is characterized by key features like multiple herringbone bands in the neck. Noteworthy in the Happyland sample is the use of appliqué on decoration layout Position 2.

Ceramics (other)

A few pieces of clay figurines were recovered from the excavations (**Figure 20**), three from Excavation 2 and two fragments from Excavation 3. Only one of these, from Excavation 2,

was identifiable. It represents an animal figurine's head, very canine-looking although it is difficult to definitely determine the type and species.



Figure 20: Clay figurines and fragments found in the excavations

Faunal Remains & Shell

Faunal remains and shell constituted the largest portion of the archaeological sample recovered during the excavations. Although some fragments were found in Excavations 1 and 4, most of the sample came from Excavations 2 and 3, with the largest portion found in Excavation 2.

The faunal remains included both identifiable and unidentifiable animal skeletal parts. Identifiable means that the parts can be identified to species or animal size, age and/or sex. The shell recovered during the excavations included both fragments of and more complete shells. The species identified were *Achatina* sp (large land snail) and also bi-valves (freshwater mussels), while ostrich egg-shell (OES) was also found. The shell sample also included utilized fragments (pendants) and a large number of beads used for personal adornment.

Excavation 1

The excavation yielded very little faunal material and no conclusions could be drawn due to the small sample size.

Excavation 2

This excavation yielded the most material and a variety of species were identified. Most of the species are wild animals and would have been hunted. The species identified were: *Equus burchelli* (Zebra), *Hippopotamus amphibious* (Hippopotamus), cf *Connochaetes taurinus* (Blue wildebeest), *Sylvicapra grimmia* (Grey duiker), *Aeypeceros melampus* (impala),

Tragelaphus stesieros (Kudu) and *Taurotragus Oryx* (Eland). The domestic species identified were *Bos taurus* (Cattle) and *Ovis aries* (Sheep).

Virtually no micro mammals such as mice and rodents were identified and the use of 1 mm mesh sieve screens should have been suitable to capture most of their remains. Reasons for the absence of these small animals may relate to excavation procedures, sorting and sampling procedures and other unknown factors. The same holds true for material from smaller mammals such as hares, rabbits, dassies and mongoose which are also absent from the sample.

Hunting seemingly played a very important part in the subsistence economy of this site (based on the results from Excavation 2) and contributed far more than the domestic animals kept. This could be due to preference or the abundance of wild animals that made reliance on domestic animals for meat unnecessary. The material submitted included large fragments and many complete bones, but very few teeth. Reasons for the absence could include the choice of excavation area, as well as possible cultural significance. At this stage the possibility that this was a hunting and/or a processing site can not be ruled out. When the detailed analysis is completed a more accurate picture might be gained.

Excavation 3

The material identified were mainly from domestic animals *Bos taurus* (cattle) and *Ovis aries* (sheep) A large amount of shell material, both worked and not worked, were identified from this excavation. As with Excavation 2 the species identified were *Achatina* sp (large land snail) and bi-valves (freshwater mussels).

The material submitted from this excavation was very fragmented and few teeth were once again present.

As both Excavations 2 and 3 were located on the same site the differences in fragmentation of the material and the species identified might prove significant and further investigation to find an explanation should be undertaken.

Excavation 4

As with Excavation 1, this excavation yielded very little material and no conclusions could be drawn due to the small sample size.

For more detail on the expert analysis of the faunal remains see Appendix 3 Faunal Analysis Preliminary Report.

Bone tools

A number of utilized bone fragments and bone tools were recovered from Excavations 2 & 3. This includes a few needles and/or awls, some broken (**Figure 21**), unfinished bone pendants with drilled holes (also **Figure 21**), fragments of a possible ivory bangle, a raw piece of ivory and bone spatulas and scrapers. The worked and raw pieces of ivory were all recovered from Excavation 3, and probably originated from hippo rather than elephant. The fact the

hippopotamus skeletal remains were identified in the faunal sample and the curve of the piece of un-worked ivory is evidence of this.



Figure 21: Bone tools and utilized bone and ivory from the site.

Shell artifacts & other utilized shell

A large amount of shell artifacts and utilized shell was recovered from the excavations and the site. This included freshwater mussel, giant landsnail and ostrich egg-shell beads (**Figure 22 & 23**). These beads are of various sizes and in stages of completion, with some showing traces of red ochre coloring. Large numbers of these beads (over **640** in total) were recovered from Excavations 2 & 3. An unfinished pendant, on a fragment of landsnail shell, was found in Excavation 3 (**Figure 24**).

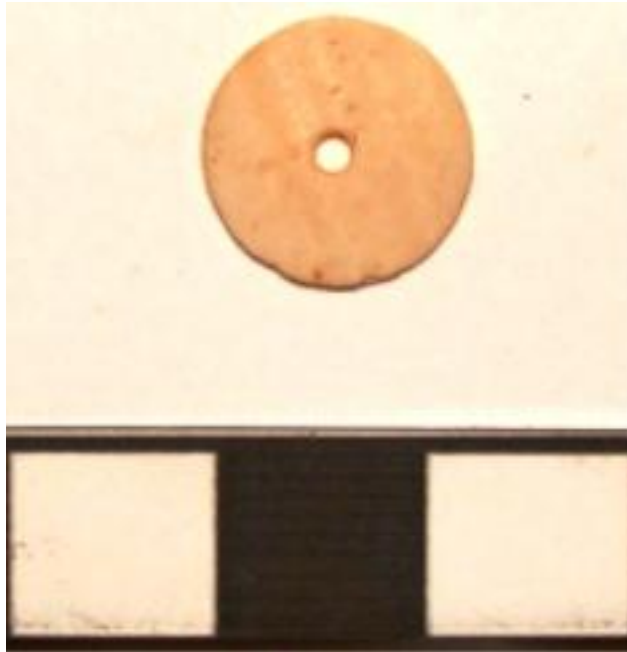


Figure 22: Large shell bead from the surface of the site



Figure 23: Shell beads of varying sizes from the excavations

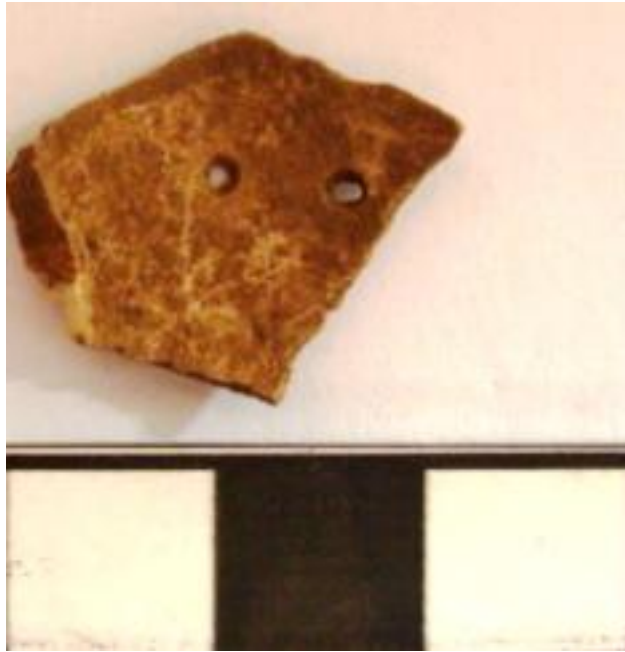


Figure 24: An unfinished shell pendant from Excavation 3

Stone objects and stone beads

Very few objects and artifacts of stone were recovered from the excavations, with most found on the surface of the site in the form of upper and lower grinding stones (see **Figure 17**). A stone object that could have been used either as a hammer stone, rubbing stone or upper grinder (**Figure 25**) was recovered from the surface of the site, while a soapstone pendant (also **Figure 25**) was also found eroded out on the runway. A number of stone (soapstone?) beads (**Figure 26**) were however recovered from both Excavation 2 and Excavation 3. They numbered 11 in total.



Figure 25: A hammer stone and a soapstone pendant from the surface



Figure 26: Stone beads from Excavation 2

Miscellaneous artifacts

This category included a sample of charcoal from Excavation 3, taken for radiocarbon dating, although it proved to be too small to be useful, a small nodule of (copper?) slag from Excavation 1 (**Figure 27**); a burnt marula pip from Excavation 2 (**Figure 28**) and a sample of possible vitrified cattle dung from Excavation 3 (**Figure 29**). Last mentioned has not been tested to determine if it definitely is cattle dung.



Figure 27: Nodule of possible copper slag from Excavation 1



Figure 28: Burnt marula from Excavation 2



Figure 29: Possible vitrified dung from Excavation 3

Human Remains

Two pit burials were uncovered in Excavation 2. The remains were very fragmented, and represent the skeletal remains of two juveniles. A third individual (an adult) was also identified in the analysis by a Forensic Anthropologist.

Burial 1

The skeletal remains of this individual were poorly preserved (**See Expert Report for details**). The age of this individual was determined by using teeth and long bone fusion, and

seems to have been between 12 and 14 years of age. The person was probably male, taking into consideration the angular shape of the mandibular corpus (mandible = lower jaw).

The incisors in the lower jaw were removed prior to death. At time of death the dental sockets were healed and closed. This practice of the removal of anterior teeth was fairly common among Iron Age communities of southern Africa.

Burial 2

The skeletal remains were once again poorly preserved and fragmented. The individual was between 6 – 8 years of age, based on its teeth. The sex could not be determined. Small lesions on the orbital roofs (eye sockets) were identified. This is known as *cribra orbitalia*, and is a condition that can be caused by a dietary iron deficiency or a bacterial infection.

Other human remains

The third individual identified in the sample is represented by two fragments of an adult mandible. The teeth are in an advanced state of dental wear. The age and sex of the individual could not be determined.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion it is possible to say that the archaeological investigation of the Early Farmer site on the farm Happyland 241 KT, near Hoedspruit in the Limpopo Province, have been completed successfully. The first aim of the excavations was to determine the extent and depth of the archaeological deposit and then to determine the furthest extent of the occupied area. It is clear from the excavations that the archaeological deposit is fairly deep, around 50cm to nearly 1m in certain areas. Sheet erosion is exposing archaeological material and also removing top soil. The occupied area is much more extensive than initially determined during the 1st Phase AIA. Cultural remains, in the form of pottery scatters and other cultural artifacts, as well as possible hut remains, were located all along the banks of the river and the alluvial floodplain created by the river when overflowing its banks. The fertile soils of the floodplain, the ready source of water and an abundant source of animals attracted by this, was probably the main reasons for successful human occupation and utilization of the site.

Determining the cultural affiliation of the inhabitants of the site is a more contentious issue. They are part of the ancestry of the Bantu-speaking groups who live in the area and South Africa today. Moreover, the earlier inhabitants are associated with the Mzonjani facies of the Urewe tradition, associated with the so-called Kwale Branch and the eastern stream of Bantu-speakers that moved into southern Africa. The later inhabitants are associated with the Doornkop facies of the Kalundu Tradition, and the western stream (Huffman, 2007: 122).

In terms of the occupational time-frame, it seems as if the earliest phase of settlement occurred between AD 450 and AD 700, although this date is based on decorated Mzonjani pottery, recovered from both Excavation 2 & Excavation 3. The 2nd phase of settlement was between AD 750 & 1000 (Doornkop), although final occupation of the area by Iron Age communities might have continued for some time after this. It is also possible that both groups inhabited the site at the same time for some period, as a small sample of typical Mzonjani pottery was found mixed in with primarily Doornkop type pottery in Excavation 2.

The Excavation 3 ceramic sample only contained Mzozani pottery, indicating a primary occupation of the site for at least some period, by this group. The relationship between the two groups is however at this stage not very clear.

Settlement organization or layout is difficult to reconstruct, as there is barely any surface features, such as the stone walls associated with the Late Iron Age, visible. A number of areas with hut clay remains and pottery scatters could indicate possible dwellings, although this is by no means certain. It seems, based on the evidence recovered from the excavations and mapping of surface finds that the settlement was located on the fertile alluvial floodplains created by the Sandspruit in times of flooding. There might have been a number of huts and granaries scattered about, with one or two decentralized cattle and other livestock enclosures as part of the settlement. The Central Cattle Pattern, so evident in Later Iron Age stone walled settlements, is not present. Only with further, more detailed, archaeological excavations could the settlement organization or layout be reconstructed with more certainty.

Interpreting the domestic economy of the settlement over time also proved problematic, even though a fairly large amount of cultural material was recovered from the archaeological excavations. Uncertainty regarding the relationship between the Mzozani and Doornkop groups on the site (whether this was contemporaneous or not) also makes this difficult. The scale on which agriculture (crop growing and utilization) was practiced is not known, but it is clear that this did form part of the domestic economy of the groups who settled here. Both upper and lower grinding stones were located over the area, evidence of the production and use of cereals, more likely crops such as sorghum or millet based on the size of the lower grinders (see **Figure 17**). Further evidence for successful agricultural practices, and of surplus, was the possible collapsed grain bin stand uncovered in Excavation 2.

The domestication of animals (herding) such as cattle (**Bos Taurus**) and sheep (**Ovis aries**), seems to have been practiced, at least during the Mzozani occupation of the site. The remains of mainly domestic animals were recovered from Excavation 3. This is of course also evidence for practices such as the use of cattle for brides (lobola) and status. Hunting, and also scavenging, played a large role in the domestic economy, especially during the Doornkop phase of settlement. The remains of mainly non-domestic fauna were recovered from Excavation 2. A small sample of domestic species (cattle and sheep) was also recovered from Excavation 2 (probably associated with the small sample of Mzozani pottery from the same Excavation.). As hippo is too large and dangerous to hunt, it is more than likely that the individuals who contributed to the faunal sample from Excavation 2 were scavenged. No evidence for snaring small animals such as scrub hares was found, with no micro-fauna skeletal remains recovered from any of the excavations. The remains of at least four tortoises from Excavation 2 indicate that this was also a source of meat and protein, together with the freshwater mussel and giant landsnail.

Evidence for other aspects of the domestic economy, such as the production of metal artifacts, tools and weapons, was very scarce. No metal artifacts or fragments were recovered from any of the excavations, although tentative evidence for metal working (smelting) was found. This included a small fragment of possible copper slag from Excavation 1 and some slag from a single area on the site. It is possible that trade with other groups was practiced, but this is once again based on very tenuous evidence. The pieces of worked and raw ivory from Excavation 3 could point in that direction, although no trade beads (glass) was recovered. All the shell beads, and the ivory, could have been for local consumption only.

Finally, it is possible to conclude that the Happyland 241 KT Early Farmer Site was successfully investigated archaeologically, at least in the section that will be impacted on by the planned development in the short term. The site is much more significant in terms of its archaeological, research and scientific value than initially thought. The settlement seems to have been more extensive and complex as well, and the large scale, long term, residential development will have a major impact on a site that represents a part of the archaeological record (Mzonjani and Doornkop) that is not completely understood as yet. **Therefore, the following mitigation measures are recommended:**

- (a) that, during all phases of the development a “watching brief” be implemented. This will entail that the Site Manager employed for the development be present and that all finds, such as dwellings and other settlement features, cultural material and human remains (pit burials) be reported to qualified archaeologists to investigate. The subterranean presence of archaeological features and cultural material should always be kept in mind on sites such as these. The presence of human remains (pit burials) on this site especially needs to be considered.**
- (b) that all finds be recorded in detail (photographic, mapped/drawn) and then be removed and taken to the Lydenburg Museum for curation. The Site Manager can also carry out some level of recording, taking photographs and measuring finds. These can then be sent to an archaeologist for identification prior to field investigation being undertaken.**
- (c) that, if deemed necessary, extensive archaeological investigations (excavations) be carried out on significant finds (such as pit burials, huts and other settlement features including granaries and furnaces), with the necessary permits obtained from SAHRA. The current permit is valid until 1 July 2009, and will be renewed every year. It is envisaged that the total development will take place over a period of approximately 5 – 6 years**
- (d) As these investigations, as well as the curation of all material, have financial implications, the costs will have to be covered by the developer**

During the fieldwork these measurements were discussed with the client, and they indicated that they are willing to implement them as such. We believe that these measurements will ensure that the total site be mitigated satisfactorily and that important information on the EIA in the area will be preserved for future generations of not only archaeologists, but also the general public. The development can therefore continue, taking cognisance of the mitigation measures recommended.

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- (1) Site Location and Distribution of Site Features: Images created on Google Earth
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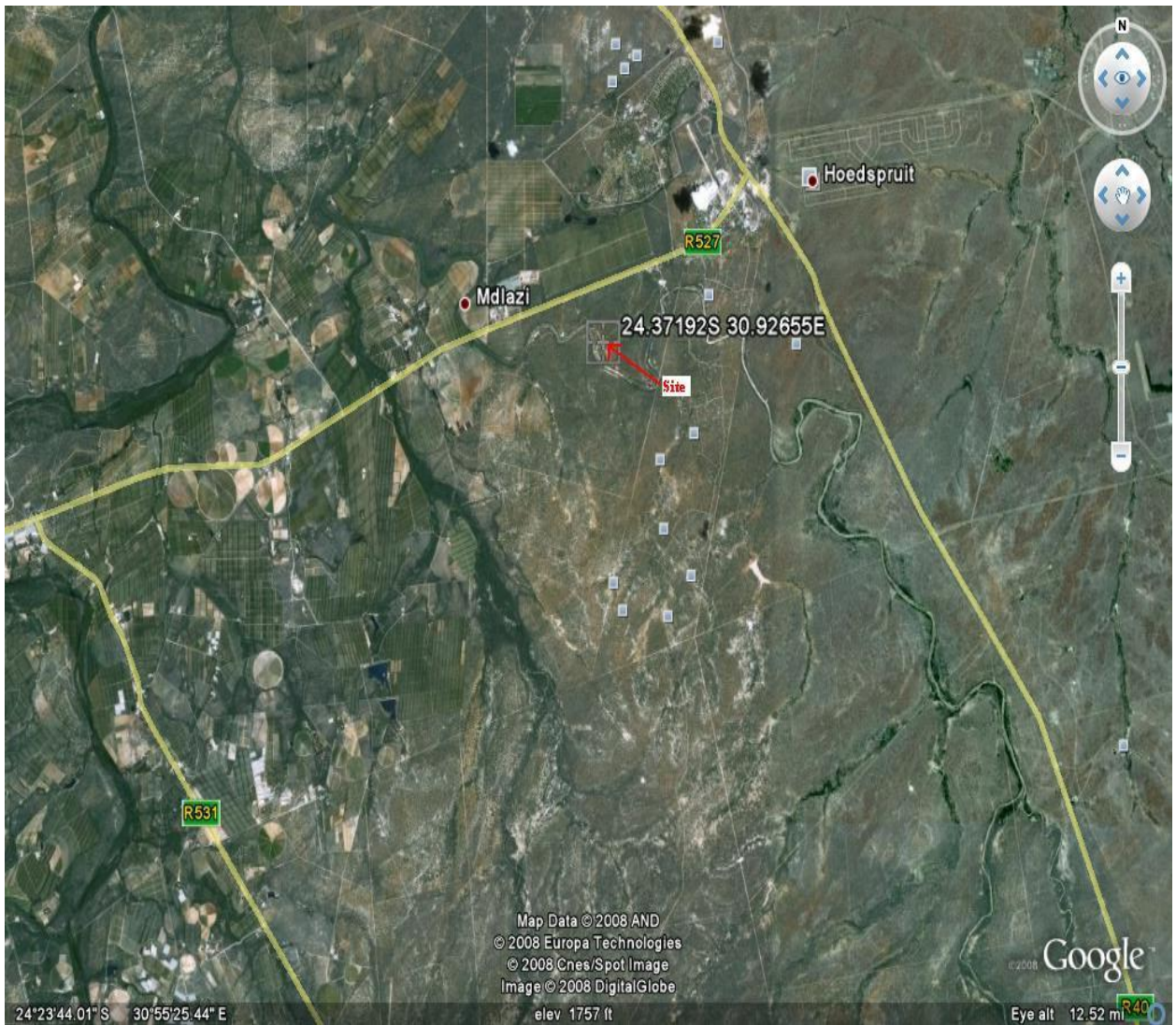
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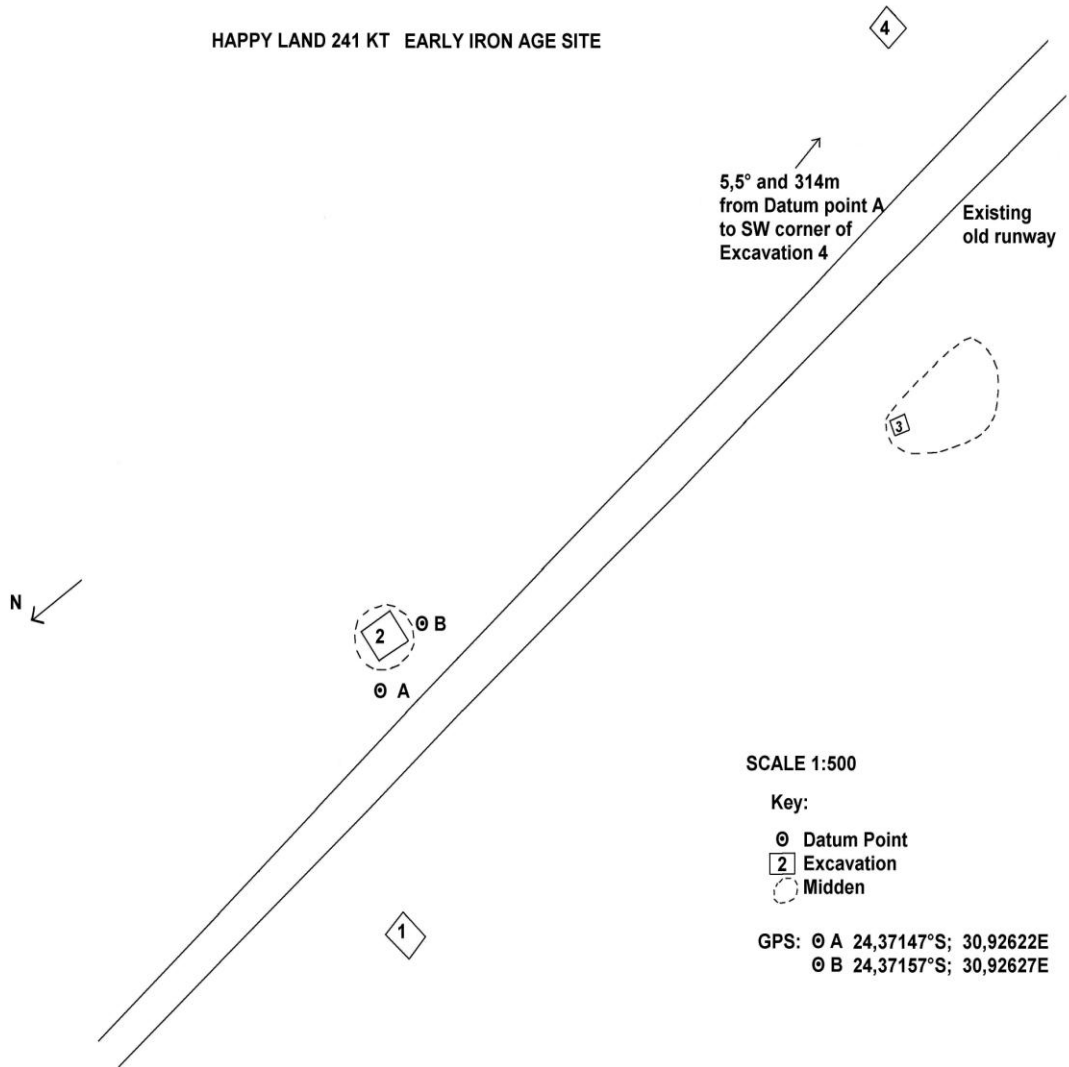
Me. K. Scott – Archaeozoologist: Analysis of faunal remains

APPENDIX 1 – SITE LOCATION AND DISTRIBUTION OF SITE FEATURES



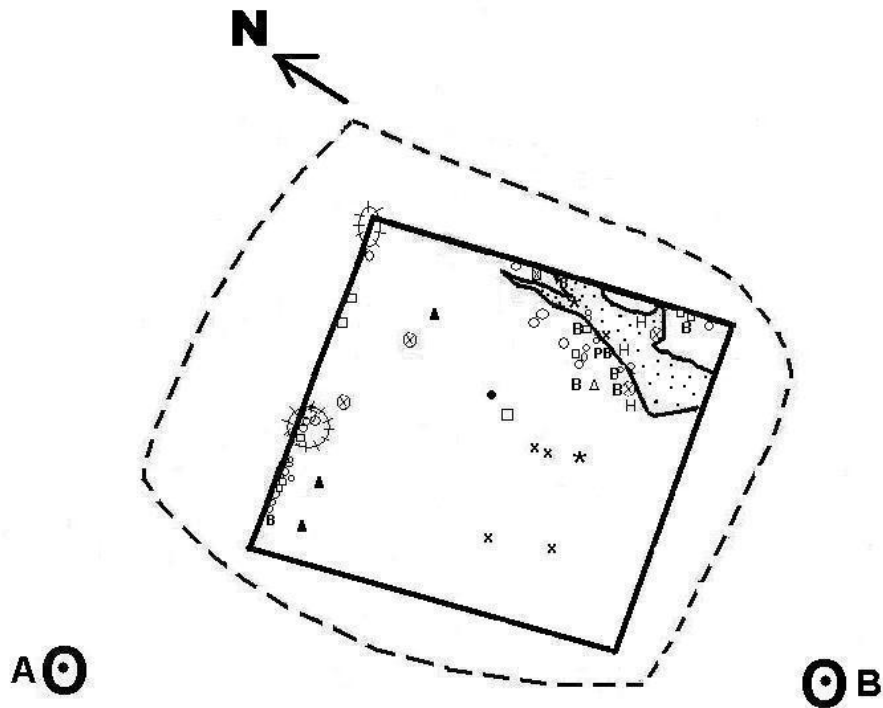


APPENDIX 2 – MAPPING & DRAWING



Basic map of excavation site showing location of the four excavations in relation to each other

HAPPYLAND 241 KT EARLY IRON AGE SITE



Scale 1:75

Key:

- ⊙ Datum Point
- Hammer Stone
- ▲ Scapula
- x Mandible / Maxilla
- ⊗ Tortoise carapace
- Clay
- * Soapstone
- ▨ Raised granary platform
- Stone / Rubbing Stone
- 8 Hippopotamus Tibia
- B Bone
- H Horn Core
- P Phalanges
- ⊙ Burial
- △ Burnt Marula Seed
- Extent of Midden

Detail drawing of Excavation 2 indicating distribution of features and important finds

APPENDIX 3 – EXPERT REPORTS

SEE SEPARATE DOCUMENTS