

**HERITAGE SURVEY OF THE PROPOSED EXPANSION  
TO THE TRANSNET NATIONAL PORTS  
AUTHORITY, RICHARDS BAY**

**FOR MSA ENVIRONMENTAL, LEGAL & MINING  
SERVICES**

**DATE: June 2009**

**By Gavin Anderson & Louise Anderson  
Umlando: Archaeological Tourism and Resource  
Management**

**PO Box 102532, Meerensee, 3901**

**Phone/fax: 035-7531785**

**Fax: 0865445631**

**Cell: 0836585362**



## TABLE OF CONTENT

|                             |    |
|-----------------------------|----|
| INTRODUCTION .....          | 3  |
| METHOD .....                | 4  |
| Defining significance ..... | 5  |
| RESULTS .....               | 9  |
| DESKTOP SURVEY .....        | 9  |
| Archaeology .....           | 9  |
| Palaeontology .....         | 10 |
| History .....               | 10 |
| FIELD SURVEY .....          | 15 |
| RBP01 .....                 | 17 |
| RBP02 .....                 | 17 |
| RBP03 .....                 | 18 |
| RBP04 .....                 | 18 |
| RBP05 .....                 | 18 |
| RBP06 .....                 | 19 |
| RBP07 .....                 | 19 |
| RBP08 .....                 | 20 |
| RBP09 .....                 | 20 |
| MANAGEMENT PLAN .....       | 23 |
| Palaeontology .....         | 23 |
| Archaeology .....           | 25 |
| CONCLUSION .....            | 27 |
| REFERENCES .....            | 28 |
| APPENDIX A .....            | 29 |
| SITE RECORD FORMS .....     | 29 |

## TABLE OF FIGURES

|   |    |
|---|----|
| FIG. 1: LOCATION OF THE PROPOSED DEVELOPMENT .....  | 7  |
| FIG. 2: CLOSE-UP OF THE PROPOSED DEVELOPMENT .....  | 8  |
| FIG. 3: RICHARDS BAY IN 1936 WITH AN OVERLAY OF THE HARBOR<br>DEVELOPMENT .....                                 | 12 |
| FIG. 4a: THE RIVER MOUTH FROM THE NORTH (TOP) AND SOUTH (BOTTOM)<br>.....                                       | 13 |
| FIG. 4b: CONTEMPORARY VIEW OF THE COASTLINE: NORTH (TOP) AND<br>SOUTH (BOTTOM) .....                            | 14 |
| FIG. 5: LOCATION OF RECORDED SITES IN THE STUDY AREA .....  | 16 |
| TABLE 1: LOCATION OF RECORDED SITES IN THE STUDY AREA .....   | 17 |
| FIG. 6: VIEW OF A CRETACEOUS LAYER OUTCROP ALONG THE BEACH .....  | 21 |
| FIG. 7: VIEW OF A CRETACEOUS LAYER ON THE SURFACE .....   | 22 |
| FIG. 8: LOCATION OF SENSITIVE ARCHAEOLOGICAL AREAS THAT REQUIRE<br>MONITORING, SAMPLING AND/OR EXCAVATION ..... | 26 |

## **INTRODUCTION**

Umlando was contracted by Transnet National Port Authority, to undertake the heritage survey of the proposed expansion to the Richards Bay harbour. The expansion covers a large area of approximately 13km x 3km. The proposed development entails new (dry) docks, railways, container holders, and related servitudes. Figures 1 and 2 indicate the location of the development and area to be affected.

Port Durnford had been used since the 1870s as a regular port by the British Navy. The Richards Bay Harbour is north of this port that was originally envisaged in 1902. The environment surrounding the harbour has been heavily impacted by the original harbour construction in the early 1970s. The harbour dredged the deep Thulazihleka Lake and cleared areas to create a harbour entrance at the Mhlatuze River mouth. The lake was divided into two parts with the southern part of the lake becoming a sanctuary with its own newly created river mouth south of the harbour entrance.

The secondary effects were an increase in wetlands in the area, and much of the original area was flooded. Furthermore, the harbour created a larger area than the original lake and thus removed much of the original land. Areas were dredged and other areas were 'created' by the sand from the dredging, or the sand was dumped onto existing land. For example, 103 hectares of coastal dune was cleared along the southern dunes, and the sand was used to reclaim some of the land for the coal terminal (Zululand Observer, 1 April 1976).

Subsequent to the harbour being built, the wetlands to the south of the harbour increased and large drainage canals have also been built. Some of these canals are part of the original rivers. There has also been a lot of industrial activity in the general area. The rest of the study area is under sugar cane agriculture with electrical, rail, gas pipeline, and vehicle servitudes. The general

study area has been severely impacted by other activities. Figure 3 shows how the lake has been transformed into a harbour.

Several archaeological and palaeontological sites have been recorded in the surrounding area: both inland and along the coast, and within a 10km radius of the development area. The archaeological surveys for Richards Bay Minerals clearly show that the coastal dune system is very sensitive in terms of archaeological sites (over 350 sites have been recorded in the mining lease). The construction of the Berth 306 revealed an important Cretaceous Layer in the harbour area. There was good reason to believe that the proposed harbour development would impact on heritage sites.

## **METHOD**

The method for Heritage assessment consists of several steps. The first step forms part of the desktop assessment. Here we would consult the databases from both Umlando and the Natal Museum. These databases contain most of the known heritage sites in KwaZulu-Natal. This database does; however, tend to be restricted to archaeological and palaeontological sites. Consulting with the relevant authorities will also cover known battlefields and historical sites. We also consult with an historical architect, palaeontologist, and an historian where necessary. A web search on the early harbour construction as well as aerial photographs dating to 1937 was also consulted.

The initial archaeological survey (i.e. fieldwork) consists of a foot survey where the selected area was covered. The survey results will define the significance of each recorded site, as well as a management plan. The main problem with the survey was the poor archaeological visibility.

All sites are grouped according to low, medium and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts or

features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips and decorated sherds are sampled, while bone, stone and shell are mostly noted. Sampling usually occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features.

## **Defining significance**

Heritage sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites. These criteria are:

### **1. State of preservation of:**

#### 1.1. Organic remains:

##### 1.1.1. Faunal

##### 1.1.2. Botanical

#### 1.2. Rock art

#### 1.3. Walling

#### 1.4. Presence of a cultural deposit

#### 1.5. Features:

##### 1.5.1. Ash Features

##### 1.5.2. Graves

##### 1.5.3. Middens

##### 1.5.4. Cattle byres

##### 1.5.5. Bedding and ash complexes

### **2. Spatial arrangements:**

#### 2.1. Internal housing arrangements

#### 2.2. Intra-site settlement patterns

#### 2.3. Inter-site settlement patterns

**3. Features of the site:**

- 3.1. Are there any unusual, unique or rare artefacts or images at the site?
- 3.2. Is it a type site?
- 3.3. Does the site have good examples of a specific time period, feature, or artefact?

**4. Research:**

- 4.1. Providing information on current research projects
- 4.2. Salvaging information for potential future research projects

**5. Inter- and intra-site variability**

- 5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?
- 5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

**6. Archaeological Experience:**

- 6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

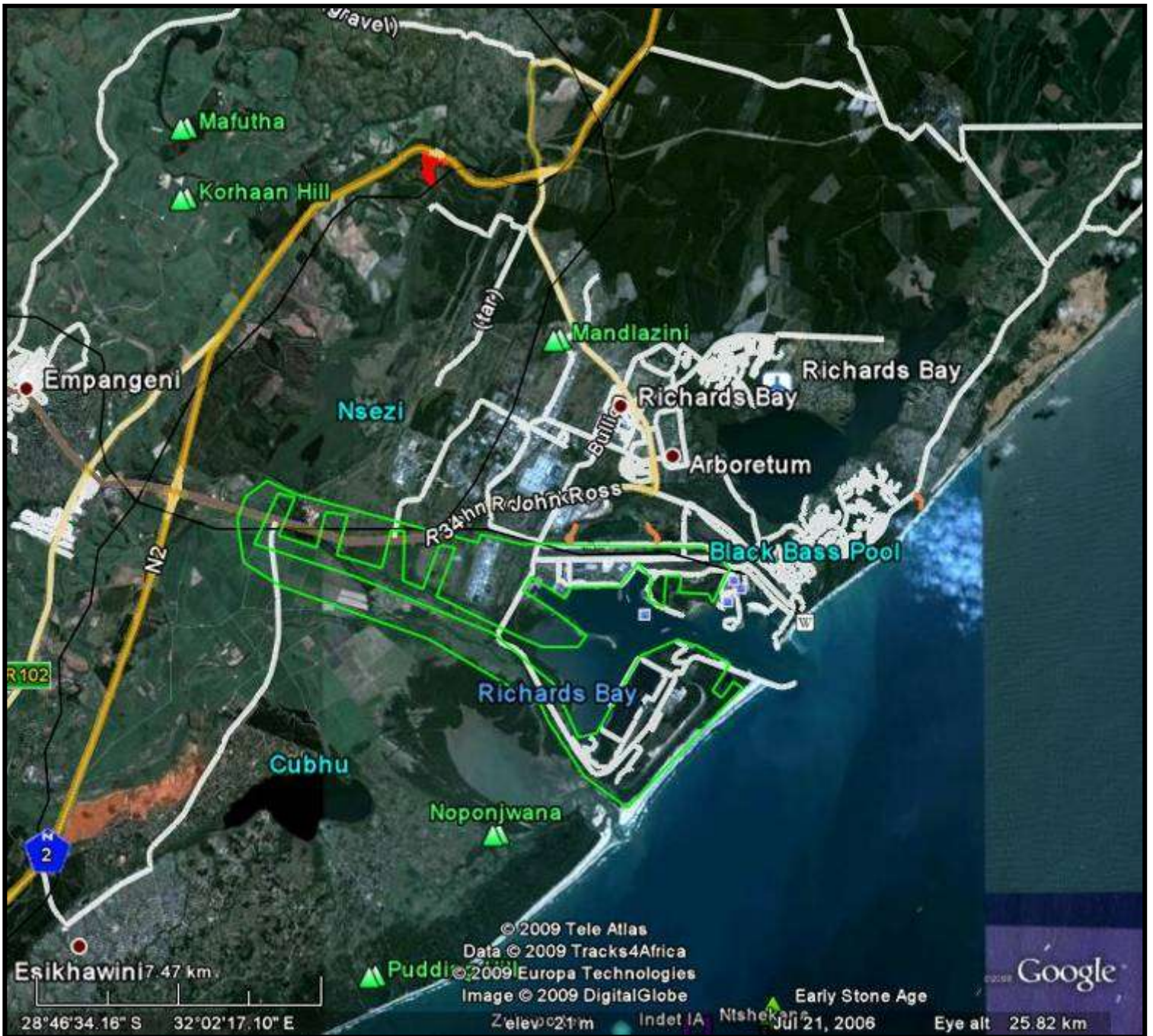
**7. Educational:**

- 7.1. Does the site have the potential to be used as an educational instrument?
- 7.2. Does the site have the potential to become a tourist attraction?
- 7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

**8. Other Heritage Significance:**

- 8.1. Palaeontological sites
- 8.2. Historical buildings
- 8.3. Battlefields and general Anglo-Zulu and Anglo-Boer sites
- 8.4. Graves and/or community cemeteries
- 8.5. Living Heritage Sites
- 8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

FIG. 1: LOCATION OF THE PROPOSED DEVELOPMENT<sup>1</sup>



<sup>1</sup> Study area is outlined in green

FIG. 2: CLOSE-UP OF THE PROPOSED DEVELOPMENT





The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. This occurs in Phase 2. These test-pit excavations may require further excavations if the site is of significance (Phase 3). Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary archaeological context. Mapping records the spatial relationship between features and artefacts.

## **RESULTS**

Several sites are noted in the survey report. Most of these have low significance, while one site has high significance. The results can be divided into a desktop analyses and the field survey.

### **DESKTOP SURVEY**

#### **Archaeology**

The desktop survey noted that ~40 archaeological have been recorded within a 10km radius of the study area (Anderson 1995 – 2003; Anderson & Anderson. 2004 – 2009a/b; Anderson & Anderson. 2006; Anderson & Anderson. 2007a/b; Anderson 2008a/b; Van Jaarsveld 2006). If the radius were increase to a 20km, then over 100 archaeological sites would occur in the area. There are no favoured areas for the archaeological sites; however, most are concentrated along the dune cordon. These sites have been recorded as a result of impact assessments, and not systematic research surveys. That is the mining lease for RBM has an abundance of sites as a direct result of it requiring a heritage survey (Anderson & Anderson 2004-2008b). Most of the sites along the Eastern Seaboard tend to date to the Iron Age, or the last 1 700 years. Several Stone

Age sites exist outside of the dune cordon, and these date to the last ~one million years.

No archaeological sites have been previously recorded in the study area.

### **Palaeontology**

A palaeontological monitoring program was set up during the construction of Berth 306 in 2006. Umlando and Mr A. van Jaarsveld were involved in the project. Several Cretaceous period fossils were excavated, sampled and rescued during this program. In addition to this Palaeocene, Miocene and Pleistocene sediments were also noted, and these contained diverse macrofaunal assemblages. The Cretaceous layers began at ~10m below the current surface at Berth 306. Just over 100 fossils were sampled from this excavation.

Significance: The palaeontological remains are of high significance.

Mitigation: Any excavations into the sand for the expansion of the harbour will probably impact on the palaeontological remains. While these remains were observed at ~10m below surface, the levels will change across the harbour, since areas have become spoil heaps or have been cleared. This will increase or decrease the depth of the palaeontological layers. The geological survey results should be assessed by a palaeontologist to estimate the depth of the palaeontological sediments across the harbour development area. The precise mitigation process for these remains is discussed below.

### **History**

Richards Bay was a small fishing village with a constant tourism industry up to the 1960s. The idea for a harbour started as far back as 1903, however only came into fruition in the early 1970s as a need arose to transport coal from the interior to a nearby port. Most of the historical buildings were situated around the

lake and this has now been transformed into the harbour. The lake and its river mouth were dredged for the harbour entrance and in the process; much of the historical, and archaeological, material was destroyed. I obtained aerial photographs from the 1930s to see what could have occurred in the area (fig. 3). If the houses or other built structures still existed, then they would be older than 60 years, and thus protected by the Heritage legislation.

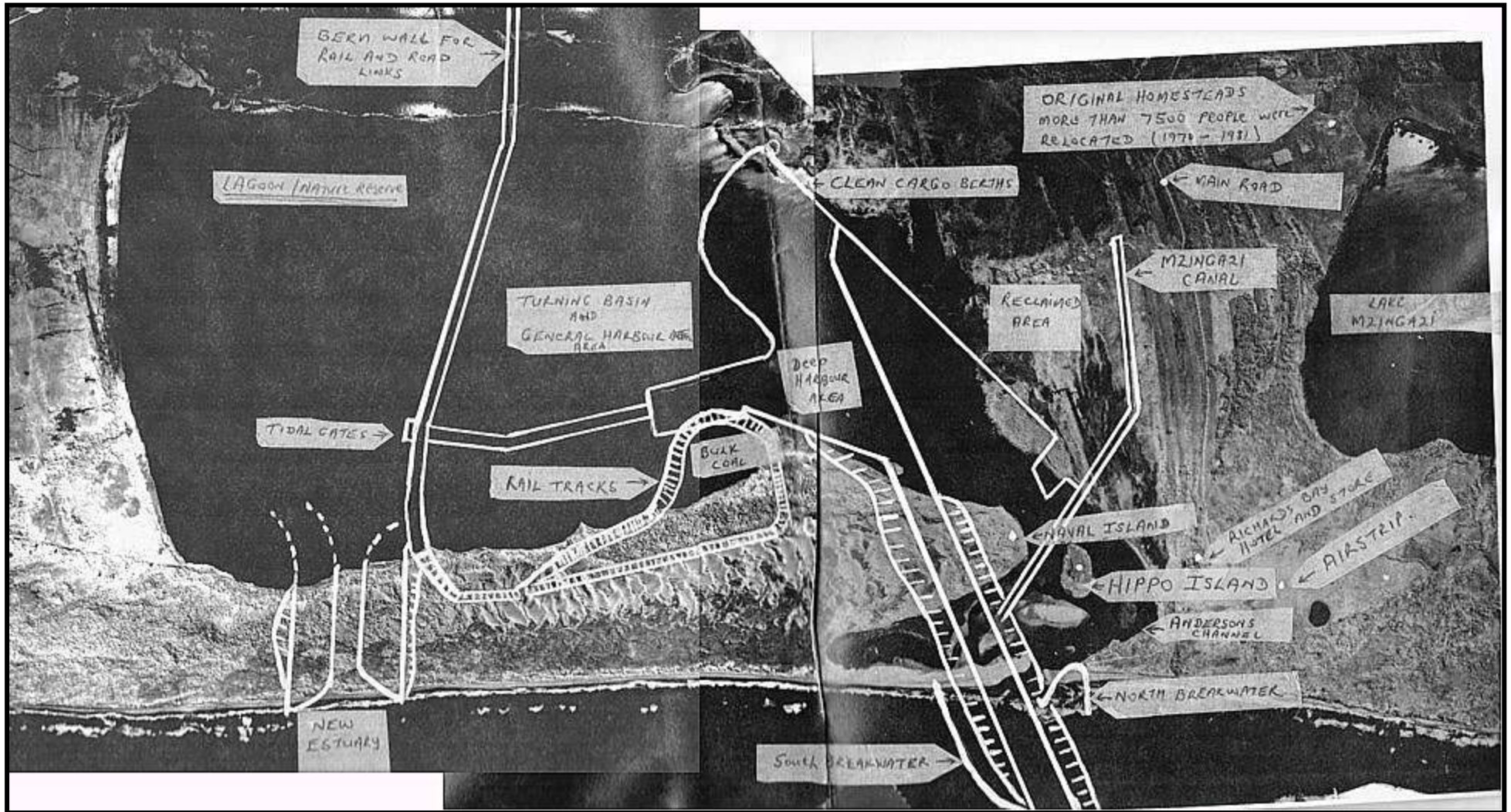
The photographs in figure 4a clearly show that the area to the east of the lake was mostly open dune with some grassland. There is no evidence, from the photographs, for human occupation in the area between the Lake and the coast. There is a possibility that Stone Age sites may occur in the deflation hollows, as we found tentative evidence for this – see below. However, much of this area would be tidal related and the deflation hollows tend to be very wet at the base, as we observed during our survey of this area. Much of this area has been damaged by the harbour development. The only strip that appears to be undamaged is the 5km stretch of coastal dunes (fig. 4b). This stretch is only 300m – 500m wide and most of it is now under dense Casuarinas forest and wetland.

The historical photos also show how certain marshes and/or wetlands have been reclaimed for agricultural activity, e.g. between Lake Cubhu and the John Ross Parkway. The retaining walls and canals draining these wetlands are secondary evidence. These areas are thus unlikely to yield archaeological sites and this is supported by the archaeological finds that occur on small hills overlooking these original wetlands. These low-lying areas were also affected by the deposition of alluvial sands from Cyclone Demoina.

Significance: The area appears to have little existing historical value and is thus of low significance.

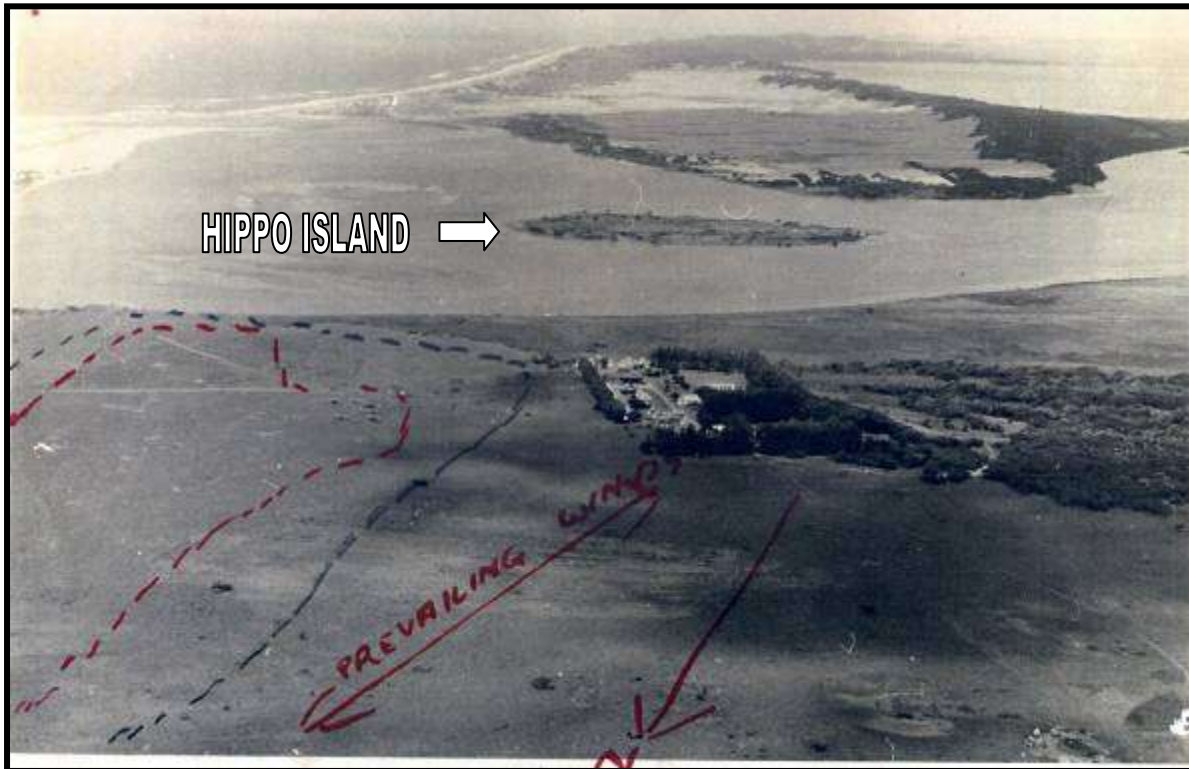
Mitigation: The area between the coast and the existing eastern railway should be monitored.

FIG. 3: RICHARDS BAY IN 1936 WITH AN OVERLAY OF THE HARBOR DEVELOPMENT<sup>2</sup>



<sup>2</sup> Photo courtesy of JC van der Walt

FIG. 4a: THE RIVER MOUTH FROM THE NORTH (TOP) AND SOUTH (BOTTOM)<sup>3</sup>



<sup>3</sup> Photos courtesy of JC van der Walt

**FIG. 4b: CONTEMPORARY VIEW OF THE COASTLINE: NORTH (TOP) AND SOUTH (BOTTOM)**



## FIELD SURVEY

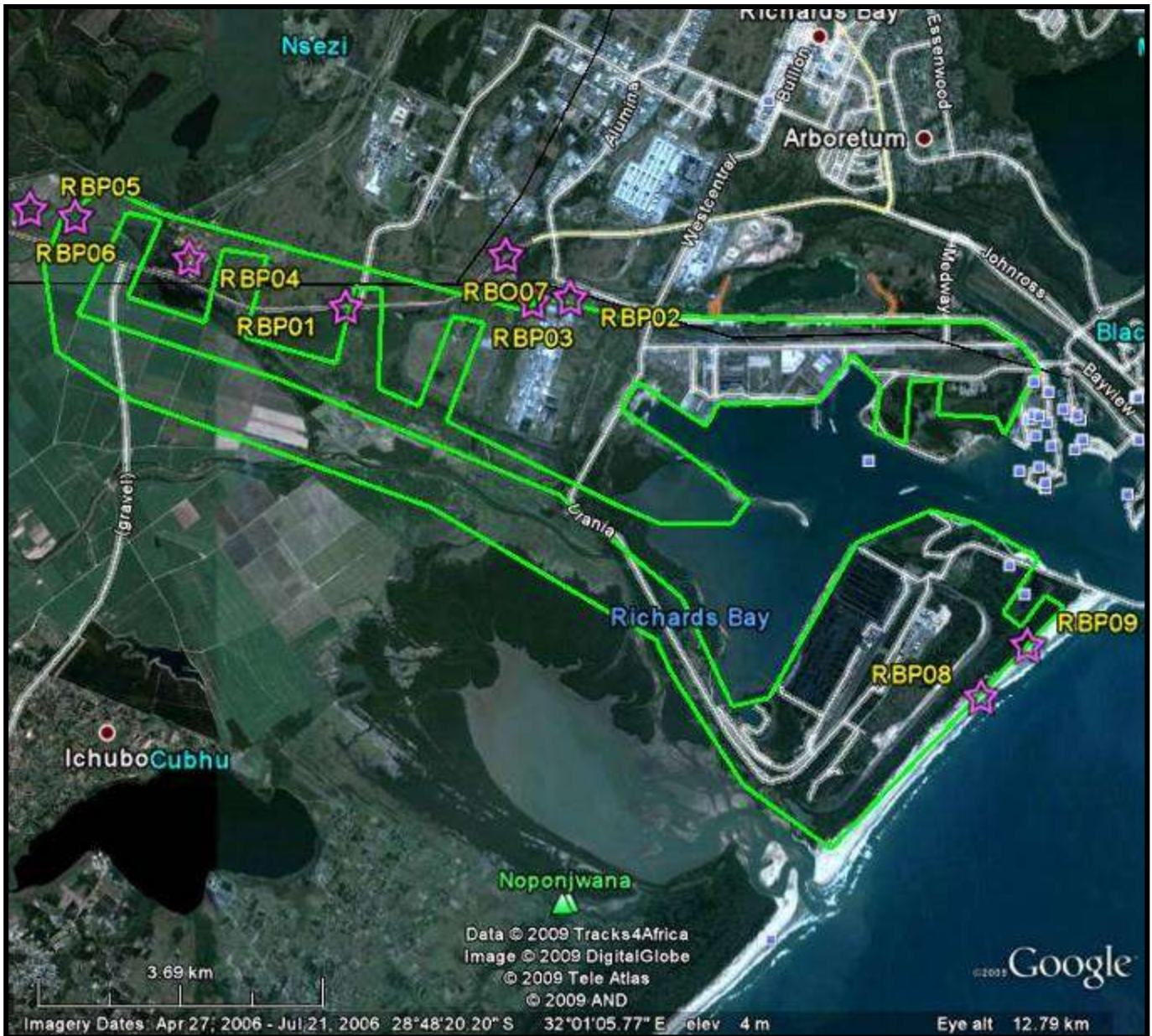
A total of nine sites were recorded during the course of the survey. These sites date from the Cretaceous to the Late Iron Age. Some sites were recorded between, or just outside, development “nodes”. This was mainly because I could extrapolate from the recorded material where sites may occur within the nodes. E.g., Early and Middle Stone Age scatters tend to occur over a wide area and it would be pointless to record each exposed scatter as a new site. I thus refer to these as general scatters of stone tools.

Much of the area between the harbour and the coast is now a wetland, mangrove swamp, or an intertidal zone. While there are several areas of undeveloped land, such as the dune areas with indigenous vegetation, these areas were too dense to survey. We did undertake surveys along the less vegetated dunes between the railway lines, however no artefacts were observed. The same scenario occurs for the area referred to as Casuarinas, i.e. west of the Small Craft Harbour. Much of the open land around the harbour appears to have been either levelled, or recreated. There are many areas with marine shell exposed, and these appear to be “dumps” from harbour construction, especially when this occurs on the top of the dunes. These are not shell middens related to human activity.

The construction of the John Ross Parkway, and its current widening has affected potential archaeological sites, as well as the construction of the transmission lines, substation and industrial buildings. Thus, we were not expecting to find many sites in a primary context. Figure 5 indicates the locations of the various sites.

Table 1 lists the sites and summarises their management.

FIG. 5: LOCATION OF RECORDED SITES IN THE STUDY AREA





**TABLE 1: LOCATION OF RECORDED SITES IN THE STUDY AREA**

| Site Name | Associated artefacts       | Significance | Required Mitigation | Will be effected |
|-----------|----------------------------|--------------|---------------------|------------------|
| RBPO1     | Pottery                    | Low          | None                | Yes              |
| RBPO2     | Stone tools                | Low          | None                | No               |
| RBPO3     | Stone tools                | Low          | None                | Yes              |
| RBPO4     | Stone tools                | Low          | None                | Yes              |
| RBPO5     | Pottery and stone tools    | Low          | None                | No               |
| RBPO6     | Stone tools                | Low          | None                | Yes              |
| RBPO7     | Pottery                    | Low          | None                | No               |
| RBPO8     | Fossils                    | High         | None                | Yes              |
| RBPO9     | Stone tools, shell midden? | Low-medium   | None                | Yes              |
| General   | Fossils                    | High         | Monitor/sample      | Yes              |

**RBPO1**

RBPO1 is located on a small hill besides the extended John Ross Parkway, overlooking the wetlands. The site consists of an ephemeral scatter of LIA pottery and may occur on the boundary of the development node.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

**RBPO2**

RBPO2 is located just outside of the development node, on a small hill besides Tin Can Alley. In the past, this would probably have been a small hill overlooking a wetland or small lake. The site consists of one (ESA) chopper, and some MSA-type flakes. These occur on the surface in an apparently disturbed area.

Significance: The site is of low significance.

Mitigation: No further mitigation is required, as the site is not directly affected.

### **RBP03**

RBP03 occurs on the same hill system as RBP02 and it also overlooks the wetlands. The site consists of MSA and LSA stone tools and may even be considered to be part of the same general site. The stone tools are flakes of various sizes made from shale or dolerite (they are very weathered) and quartz. The stone tools are located on the surface in an area that appears to be disturbed. The site was mainly recorded outside of the development boundary, but extends into the development node.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

### **RBP04**

RBP04 is located in the “base” of the hill and covers a wide area. The area is currently being used as a sand borrow pit and a quad-bike track. The artefacts are found at the interface of the white aeolian sand and the red sand. The artefacts consist of an ephemeral scatter of ESA and MSA stone tools over a very large area. I would assume that these tools would occur across the entire development node north of the Mhlatuze River– seen in the occurrences of RBP02/03/05/06.

Significance: The site is of low significance, however ESA material is rare along the eastern seaboard.

Mitigation: The area should be periodically monitored during construction activity and selected stone tools sampled.

### **RBP05**

RBP05 occurs on a small hill overlooking wetland. The site occurs near the electrical substation and is thus just outside of the development. The site consists of MSA flakes and LIA pottery that occur on the surface. The vegetation

had been stripped during the survey, and some of the soil appears to be used as a borrow pit. The electrical substation occurs over most of the site.

Significance: The site is of low significance

Mitigation: The site occurs outside of the development node and no mitigation is required.

### **RBP06**

RBP06 is located on a small hill before the land flattens out onto the “plains” of the Umhlatuze River. The general area has been disturbed by the construction of electricity pylons. The site consists of an ephemeral scatter of MSA tools.

Significance: the site is of low significance.

Mitigation: No further mitigation is required.

### **RBP07**

RBP07 occurs on a small hill besides the existing John Ross Parkway. We observed (and recorded) the site as part of a general reconnaissance of the area. That is, we used exposed areas just outside of the study area to inform us about sites that may occur within the study area. The site has been exposed by the construction of the new John Ross Parkway and the artefacts are visible in this road cutting. The site consists of a scatter of Early Iron Age pottery.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

### **RBP08**

RBP08 is located along the coastline and just above the high water mark. It is about 2.5km south of the southern breakwater. The site consists of a geological formation that has formed a shelf protruding from the sand dunes, as the dunes are eroded (fig. 6). The formation appears to be that of a Cretaceous layer (Dr. G. Groenwald pers. comm.) and consists of many fossilised remains. The layer is relatively thick and either thins out towards the interior, or it dips below the sand dunes – see Fig. 7 where the same material is scattered along the surface.

Significance: The site is of high significance.

Mitigation: The area will need to be monitored and sampled.

### **RBP09**

RBP09 is located on the surface of a Cretaceous layer between two dunes. The site is thus in a deflation hollow. The site consists of several shell species of which some have been burnt, as well as a three weathered stone tools. The burnt shell is not consistent with a “beach braai” as these are fragmented and scattered – a recent “beach” braai would have shells in close proximity, and less broken. The stone tools appear to date to the LSA, however, these are weathered and just fit the criteria of a stone tool. If only one had been observed I would not have recorded the area as a site. I think the heavy storms of April 2008 would have impacted on this site as well.

Significance: The site is of low-medium significance

Mitigation: The area should be monitored if effected, with the possibility of excavations..

**FIG. 6: VIEW OF A CRETACEOUS LAYER OUTCROP ALONG THE BEACH**



**FIG. 7: VIEW OF A CRETACEOUS LAYER ON THE SURFACE**



## MANAGEMENT PLAN

There are two main types of sites in the study area: palaeontological and archaeological. The construction of the harbour has destroyed many sites and thus those areas that have had little impact should be closely monitored. Three areas require monitoring during the expansion of the harbour:

- Those areas below the surface that have palaeontological remains.
- North of the John Ross Parkway
- Between the harbour's easternmost railway and the coast

### Palaeontology

We would require the geological report and data from the core samples to obtain a better understanding of the geology and palaeontological formations of the affected area. This will be sent to the palaeontologist who will be responsible for overseeing this part of the project. The palaeontologist will then be able to flag areas, or depths, that will be sensitive.

A monitoring and salvaging program will need to be set up for any subsurface excavations. The work at Berth 306 was essentially undertaken by two archaeologists who worked under the supervision of a palaeontologist. It would be ideal to have a palaeontologist on site during the duration of the impact on potential fossil remains. This is however unlikely given the paucity of palaeontologists in the country. The rate of soil removal from the excavations at Berth 306 made it very difficult to keep track of the fossil remains. Van Jaarsveld noted in his report that the excavators were too fast and removed too much material to make it viable: he could only sample a fraction of what was removed. There were also problems with members of the public removing fossils illegally. I suggest that a similar approach is used, but with a few alterations:

- A palaeontologist supervises the excavations and has a site visit at least once every 2 weeks.
- An archaeologist can stand in for the palaeontologist and visit the site on a regular basis, e.g. every 2-3 days. There are three

archaeological/heritage impact assessors in Richards Bay area who can be on site for an emergency and all have agreed to work together on this project.

- The palaeontologist trains someone who has some basic form of archaeological or palaeontological experience. They would need to be on site for the duration of the excavations of palaeontological remains. This person's role will be similar to that of an ECO and would sample material as needs be. The person will also have the same 'functions' as an ECO. This person would report directly to the archaeologist, who will in turn report to the palaeontologist.<sup>4</sup>
- All layers with palaeontological material must deposited in a separate area to that of the normal dumping area. This will allow the various people to sample the remains at a better rate.
- Once the Cretaceous layers are reached, then the entire area that is being excavated must be cleared down to that level. Thus a wide open layer can be exposed and allow for better sampling. The opposite of this is for many deep holes to be made and this will result in crushed fossils – an undesirable option that happened at Berth 306.
- Contractors must also assist in terms of allowing heavy-duty machinery to move the larger fossils. The alternative is that every time a machine is required, all construction activity would be stopped, while appropriate machinery is sourced, brought onto site with someone competent in using that machine. This would be costly.
- Contractors must make provision for the above in their quotes and also for possibilities delays if important finds are located and need to be excavated.
- A storeroom is made available for the temporary storage and minimal curation of the palaeontological remains. Access to this room should be restricted. The room can be a metal container with shelving or an office nearby.

---

<sup>4</sup> We know of several people who could fulfill this job



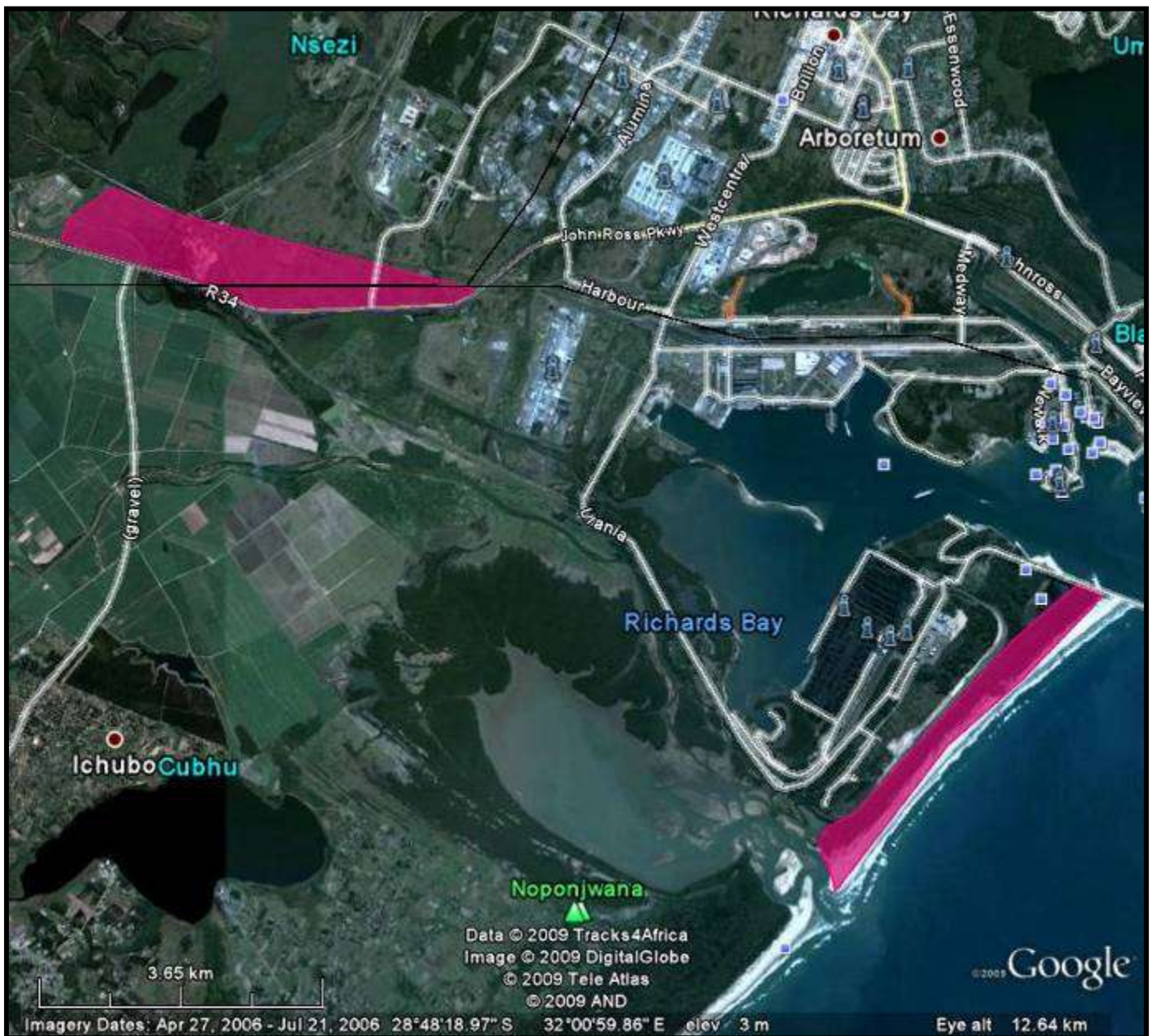
## **Archaeology**

There are two areas of archaeological sensitivity that will require further investigation if they are to be affected. The first area is mostly north of the John Ross Parkway. Several ESA and MSA sites were observed in the area, and those around RBP06 appear to be more significant than the other areas. Few ESA sites have been recorded in this area and a sample of these tools should be taken. The area will need to be monitored during any earthmoving activity and samples of various types of stone tools may be taken. The area has been (and still is) damaged by a quad-bike track and a sand borrow pit. The former damage is minimal, while the borrow pit damage is permanent and negative.

The second area is located between the harbour's easternmost railway and the coast. There are possible remains of archaeological sites: RBP09 is such a site, and this may extend under the dense Casuarinas trees. We did not survey under these trees due to poor visibility and a safety issue. Any type of earth moving, rehabilitation, or development should be monitored by an archaeologist with the possibility of excavations.

Figure 8 outlines these two sensitive areas.

FIG. 8: LOCATION OF SENSITIVE ARCHAEOLOGICAL AREAS THAT REQUIRE MONITORING, SAMPLING AND/OR EXCAVATION<sup>5</sup>



<sup>5</sup> Sensitive areas demarcated in cerise pink

## CONCLUSION

An heritage survey of the proposed Richards Bay Port expansion project was undertaken in May 2009. We consulted with known archaeological databases to obtain an understanding of previously recorded sites in the area. This database noted ~40 previously recorded sites within a 10km radius of the study area. We also consulted with historical photographs to obtain a better understanding of the impact of the harbour on the environment and thus archaeological sites.

The survey recorded nine archaeological sites of varying significance, and the potential for palaeontological remains that are of high significance. Out of these nine sites, three areas will need to be monitored, sampled and/or excavated if they are effected in any manner. We suggested a detailed monitoring and sampling program for the palaeontological remains. This management program has the potential for “advertising” the project in terms of heritage management and thus public relations for Richards Bay. The excavations at Berth 306 received negative publicity due to a foreign (alleged) palaeontologist who brought in newspapers claiming that the HIA was not undertaken. If Richards Bay ever builds a museum, then some of these remains can be used for display purposes.

The port expansion project will need to obtain a permit from Amafa KZN for the destruction of archaeological sites. All sites within the admiralty reserve fall under the South African Heritage Resources Agency, and they will need to issue a permit for the destruction of these sites.

## REFERENCES

Anderson, G. & Anderson, L. 1995 - 2003. **Annual Archaeological Reports to Richards Bay Minerals Zulti North Mining Lease.** For Richards Bay Minerals.

Anderson, G. & Anderson, L. 2004 – 2009. **Annual archaeological reports to Exxaro (Pty) Ltd.**

Anderson, G. & Anderson, L. 2004 - 2009. **Annual reports to Richards Bay Minerals Zulti North Mining Lease.** For Richards Bay Minerals.

Anderson, G. & Anderson, L. 2006. **The Preliminary Archaeological Survey Of The Zulti South Mining Lease.** For Richards Bay Minerals.

Anderson, G. & Anderson, L. 2007. **Archaeological Survey Of The Inhlansi Project For Nozelela Minerals Sands (Pty) Ltd,** for: SRK Consulting

Anderson, G. & Anderson, L. 2007. **The Pre-Feasibility Study of the Archaeological Survey Of The Zulti South Mining Lease:** For Richards Bay Minerals.

Anderson, G. 2008a. **Archaeological Survey Of The Proposed John Ross Interchange Development,** For: Metallon Properties (Pty) Ltd

Anderson, G. 2008b. **Archaeological Survey Of The Proposed Nseleni Housing Development,** For: Metallon Properties (Pty) Ltd

Natal Museum Data Recording Centre, Pietermaritzburg

Van Jaarsveld, A. 2006. **The Construction of Berth 306 at the Port of Richards Bay: Removal of Ammonites from the Upper Maastrichtian (Cretaceous) Layer**

**APPENDIX A**

**SITE RECORD FORMS**

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**



**SITE CATEGORY:** (X where applicable)

Stone Age  
Early Iron Age:  
Late Iron Age X  
Historical Period:

Recorder's Site No.: RBP01

Map Reference: 28°46'49.10"S 31°59'14.80"E (alt = 14 m)

**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

RBP01 is located on a small hill besides the extended John Ross Parkway, overlooking the wetlands. The site consists of an ephemeral scatter of LIA pottery and may occur on the boundary of the development node.

**SITE DESCRIPTION:**

Type of Site: Open  
Merits conservation: No  
Threats: yes  
What threats: Possible development

**RECORDING:**

Graphic record:  
Digital pictures:                      Tracings :                      Re-drawings:

**Recorder/Informant:**

Name: Gavin and Louise Anderson  
Address: PO Box 102532, Meerensee, 3901  
Date: May 2009  
Owner: State  
References: : umlando -HERITAGE SURVEY OF THE PROPOSED EXPANSION TO THE TRANSNET NATIONAL PORTS AUTHORITY, RICHARDS BAY

**Description of site and artefactual content.**

The site consists of an ephemeral scatter of LIA pottery and may occur on the boundary of the development node.

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:** (X where applicable)

Stone Age: MSA

Early Iron Age:

Late Iron Age

Historical Period:

Recorder's Site No.: RBP02

Map Reference: 28°46'45.30"S 32° 1'2.40"E (alt = 18 m)



**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

RBP02 is located just outside of the development node, on a small hill besides Tin Can Alley. In the past, this would probably have been a small hill overlooking a wetland or small lake.

**SITE DESCRIPTION:**

Type of Site: Open

Merits conservation: No

Threats: yes

What threats: Possible development

**RECORDING:**

Graphic record:

Digital pictures:

Tracings :

Re-drawings:

**Recorder/Informant:**

Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: May 2009

Owner: State

References: : umlando -HERITAGE SURVEY OF THE PROPOSED EXPANSION TO THE TRANSNET NATIONAL PORTS AUTHORITY, RICHARDS BAY

**Description of site and artefactual content.**

The site consists of one (ESA) chopper, and some MSA-type flakes. These occur on the surface in an apparently disturbed area.

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:** (X where applicable)

Stone Age: MSA, LSA

Early Iron Age:

Late Iron Age

Historical Period:

Recorder's Site No.: RBP03

Map Reference: 28°46'46.79"S 32° 0'44.39"E (alt = 18m)



**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

RBP03 occurs on the same hill system as RBP02 and it also overlooks the wetlands.

**SITE DESCRIPTION:**

Type of Site: Open

Merits conservation: No

Threats: yes

What threats: Possible development

**RECORDING:**

Graphic record:

Digital pictures:

Tracings :

Re-drawings:

**Recorder/Informant:**

Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: May 2009

Owner: State

References: : umlando -HERITAGE SURVEY OF THE PROPOSED EXPANSION TO THE TRANSNET NATIONAL PORTS AUTHORITY, RICHARDS BAY

**Description of site and artefactual content.**

The site consists of MSA and LSA stone tools and may even be considered to be part of the same general site. The stone tools are flakes of various sizes made from shale or dolerite (they are very weathered) and quartz. The stone tools are located on the surface in an area that appears to be disturbed. The site was mainly recorded outside of the development boundary, but extends into the development node.



**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:** (X where applicable)

Stone Age: ESA, MSA

Early Iron Age:

Late Iron Age

Historical Period:

Recorder's Site No.: RBP04

Map Reference: 28°46'28.98"S 31°58'0.02"E (alt = 28 m)



**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

RBP04 is located in the "base" of the hill and covers a wide area. The area is currently being used as a sand borrow pit and a quad-bike track.

**SITE DESCRIPTION:**

Type of Site: Open

Merits conservation: Yes: monitor

Threats: yes

What threats: Possible development

**RECORDING:**

Graphic record:

Digital pictures:

Tracings :

Re-drawings:

**Recorder/Informant:**

Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: May 2009

Owner: State

References: : umlando -HERITAGE SURVEY OF THE PROPOSED EXPANSION TO THE TRANSNET NATIONAL PORTS AUTHORITY, RICHARDS BAY

**Description of site and artefactual content.**

The artefacts are found at the interface of the white aeolian sand and the red sand. The artefacts consist of an ephemeral scatter of ESA and MSA stone tools over a very large area. I would assume that these tools would occur across the entire development node north of the Mhlatuze River– seen in the occurrences of RBP02/03/05/06.

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:** (X where applicable)

Stone Age: MSA

Early Iron Age:

Late Iron Age : X

Historical Period:

Recorder's Site No.: RBP05

Map Reference: 28°46'8.01"S 31°56'43.66"E (alt = 29m)



**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

RBP05 occurs on a small hill overlooking wetland. The site occurs near the electrical substation and is thus just outside of the development.

**SITE DESCRIPTION:**

Type of Site: Open

Merits conservation: No

Threats: yes

What threats: Possible development

**RECORDING:**

Graphic record:

Digital pictures:

Tracings :

Re-drawings:

**Recorder/Informant:**

Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: May 2009

Owner: State

References: : umlando -HERITAGE SURVEY OF THE PROPOSED EXPANSION TO THE TRANSNET NATIONAL PORTS AUTHORITY, RICHARDS BAY

**Description of site and artefactual content.**

The site consists of MSA flakes and LIA pottery that occur on the surface. The vegetation had been stripped during the survey, and some of the soil appears to be used as a borrow pit. The electrical substation occurs over most of the site.

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:** (X where applicable)

Stone Age: MSA

Early Iron Age:

Late Iron Age

Historical Period:

Recorder's Site No.: RBP06

Map Reference: 28°46'11.05"S 31°57'5.03"E (alt = 12m)



**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

RBP06 is located on a small hill before the land flattens out onto the "plains" of the Umhlatuze River. The general area has been disturbed by the construction of electricity pylons.

**SITE DESCRIPTION:**

Type of Site: Open

Merits conservation: No

Threats: yes

What threats: Possible development

**RECORDING:**

Graphic record:

Digital pictures:

Tracings :

Re-drawings:

**Recorder/Informant:**

Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: May 2009

Owner: State

References: : umlando -HERITAGE SURVEY OF THE PROPOSED EXPANSION TO THE TRANSNET NATIONAL PORTS AUTHORITY, RICHARDS BAY

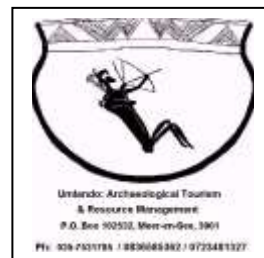
**Description of site and artefactual content.**

The site consists of an ephemeral scatter of MSA tools.

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:** (X where applicable)

Stone Age  
Early Iron Age: X  
Late Iron Age  
Historical Period:



Recorder's Site No.: RBP07  
Map Reference: 28°46'27.50"S 32° 0'31.60"E (alt = 32m)

**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

RBP07 occurs on a small hill besides the existing John Ross Parkway.

**SITE DESCRIPTION:**

Type of Site: Open  
Merits conservation: No  
Threats: yes  
What threats: Possible development

**RECORDING:**

Graphic record:  
Digital pictures:                                  Tracings :                                  Re-drawings:

**Recorder/Informant:**

Name: Gavin and Louise Anderson  
Address: PO Box 102532, Meerensee, 3901  
Date: May 2009  
Owner: State

References: : umlando -HERITAGE SURVEY OF THE PROPOSED EXPANSION TO THE TRANSNET NATIONAL PORTS AUTHORITY, RICHARDS BAY

**Description of site and artefactual content.**

The site consists of a scatter of Early Iron Age pottery.

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:** (X where applicable)

Palaeontological: X

Stone Age

Early Iron Age:

Late Iron Age

Historical Period:



Recorder's Site No.: RBP08

Map Reference: 28°49'32.92"S 32° 4'19.74"E (alt = 4m)

**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

RBP08 is located along the coastline and just above the high water mark. It is about 2.5km south of south peer.

**SITE DESCRIPTION:**

Type of Site: Open

Merits conservation: Yes

Threats: yes

What threats: Possible development

**RECORDING:**

Graphic record:

Digital pictures:

Tracings :

Re-drawings:

**Recorder/Informant:**

Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: May 2009

Owner: State

References: : umlando -HERITAGE SURVEY OF THE PROPOSED EXPANSION TO THE TRANSNET NATIONAL PORTS AUTHORITY, RICHARDS BAY

**Description of site and artefactual content.**

The site consists of a geological formation that has formed a shelf protruding from the sand dunes, as the dunes are eroded. The formation appears to be that of a Cretaceous layer (Dr. G. Groenwald pers. comm.) and consists of many fossilised remains. The layer is relatively thick and either thins out towards the interior, or it dips below the sand dunes

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:** (X where applicable)

Stone Age: LSA

Early Iron Age:

Late Iron Age

Historical Period:

Recorder's Site No.: RBP09



Map Reference: 28°49'11.20"S 32° 4'41.85"E (alt = 7m)

**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

Just north of RBP08 on edge of Casuarinas

**SITE DESCRIPTION:**

Type of Site: Open

Merits conservation: Yes: monitor/test-pit

Threats: yes

What threats: Possible development

**RECORDING:**

Graphic record:

Digital pictures:

Tracings :

Re-drawings:

**Recorder/Informant:**

Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: May 2009

Owner: State

References: : umlando -HERITAGE SURVEY OF THE PROPOSED EXPANSION TO THE TRANSNET NATIONAL PORTS AUTHORITY, RICHARDS BAY

**Description of site and artefactual content.**

RBP09 is located on the surface of a Cretaceous layer between two dunes. The site is thus in a deflation hollow. The site consists of several shell species of which some have been burnt, as well as a three weathered stone tools. The burnt shell is not consistent with a "beach braai" as these are fragmented and scattered – a recent "beach" braai would have shells in close proximity, and less broken. The stone tools appear to date to the LSA, however, these are weathered and just fit the criteria of a stone tool. If only one had been observed I would not have recorded the area as a site. I think the heavy storms of April 2008 would have impacted on this site as well.