

**The Archaeological Surveys and Excavations of the  
Zulti North Mining Lease**

*For Richards Bay Minerals*

**2020 Annual Report**

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**By Gavin Anderson and Louise Anderson**

**Umlando: Archaeological Surveys and Heritage**

**Resources Management**

**PO Box 10153, Meerensee, 3901**



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## Abbreviations

HP	Historical Period
IIA	Indeterminate Iron Age
LIA	Late Iron Age
EIA	Early Iron Age
ISA	Indeterminate Stone Age
ESA	Early Stone Age
MSA	Middle Stone Age
LSA	Late Stone Age
HIA	Heritage Impact Assessment
PIA	Palaeontological Impact Assessment

### GENERAL AGE. GROUPS DATE

Period	Pottery Group	Associated language/people	Years ago
ESA	N/A	Foragers/hunter/gatherers	1.5 million - 250 000
MSA	N/A	Hunter gatherers	250 000 – 30 000
LSA	N/A	San Hunter gatherers	30 000 – 2 000
EIA	1	Mzonjani	1 700 – 1 500
EIA	2	Msuluzi	1500 - 1300
EIA...	3	Ndondondwane	1300 – 1100
EIA	4	Ntshekane	1100 - 900
LIA	5	Blackburn/Mpambanyoni	900- 700
LIA	6	Moor Park	700 - 500
LIA	7	Thembe-Tsonga	500 – 250/300
Historical	Groups 8,9	Mthiyane /Sokhulu	200 – present

ESA = Early Stone Age

MSA = Middle Stone Age

LSA = Late Stone Age

EIA = Early Iron Age

LIA = Late Iron Age

# INTRODUCTION

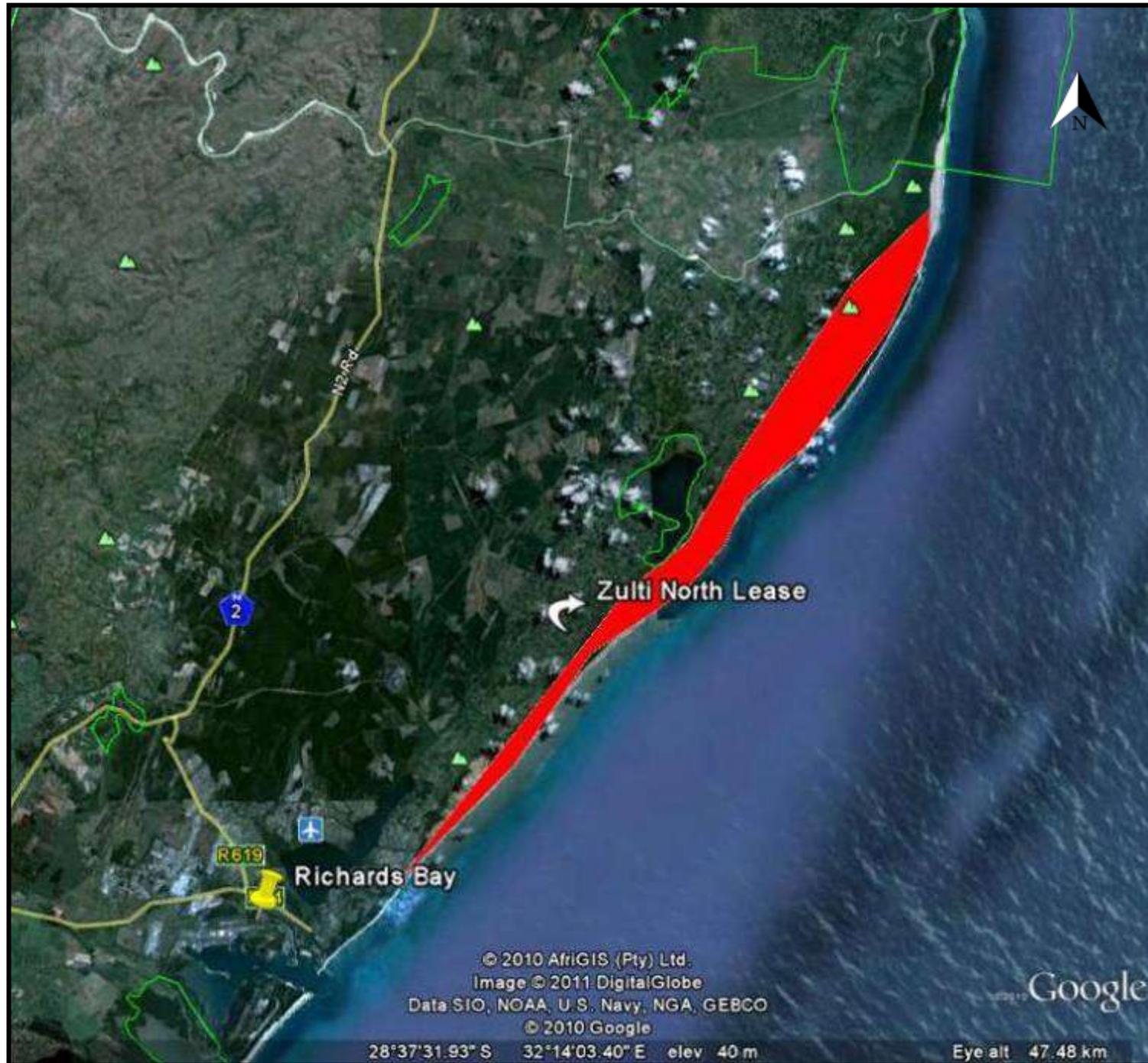
Umlando is contracted by Richards Bay Minerals (Pty) Ltd to undertake archaeological surveys and excavations in the Zulti North mining lease. The mining lease is located north of Richards Bay, KwaZulu-Natal and occurs along the eastern seaboard. (Fig.'s 1 - 2).The program consists of bi-monthly surveys, while excavations occur when needed. The archaeological program has been in progress at RBM Zulti North since 1995.

A total of 9 new sites were recorded in 2020, while several sites were continuously monitored and sampled. One site was excavated. It appears that MPE and Red Dunes still continue towards archaeologically sensitive areas and MPC remains in an area that has been partially mined by dry mining. MPA and MPD did not progress far in terms of distance in 2020.

There have been a total of 480 archaeological sites recorded in the Zulti North mining lease since 1995. This number excludes large sites that have been subdivided. Most of these sites date to the Late Iron Age and Historical Period, while a few date to the Early Iron Age. Three San hunter-gatherer sites have been recorded and/or excavated. These sites are rare in the dune system as they tend to be ephemeral or assumed to be Iron Age sites.

The excavation results have yielded an increase in general sample size of faunal remains, shellfish species data, such as mean sizes and density. These have relevance to contemporary research. The excavation also continued to yield results comparable to previously excavated sites. The importance in the excavations is that there is a very tight sequence over the last 1700 years in the dune system. That is, the sites will eventually give a near continual coverage of the last 1700 years in the dunes. It is rare to cover a long continual period in a well defined area.

**FIG. 1: LOCATION OF THE ZULTI NORTH MINING LEASE**



**FIG. 2: LOCATION OF RECORDED ARCHAEOLOGICAL SITES IN THE MINING LEASE**



# METHOD

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, especially pottery. Sites of medium significance have diagnostic artefacts and these are 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 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. We attempt to recover as many artefacts from these sites by means of systematic sampling, as opposed to sampling diagnostic artefacts only.

## Defining significance

Archaeological 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?

3.2.1. Does the site have a very good example 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.

The more a site can fulfil the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. These test-pit excavations may require further excavations if the site is of significance. 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

## SURVEYS

Often sites are covered by vegetation during a survey and thus their extent is estimated. We continue to monitor the site until it is mined and update the records accordingly. Some sites are not photographed as the dense vegetation does not allow for any representation. All diagnostic pottery, unique finds, well preserved faunal remains, and occasionally shell, is sampled from each site regardless of its significance. The sampling strategy allows for most sites to be represented since dune mining will destroy the entire site. It is also for this reason that sites with intact middens and/or deposit are targeted for excavations, since few of these remain intact after bush clearance.

Most sites are photographed, except those that have been widely dispersed and the general shape of the hill has been changed.

### MINING POND A

No new sites were recorded. MPA is currently going through a previously mined area. Access to the dune face is extremely difficult, but was monitored.

### MINING POND C

No new sites were recorded. Mining Pond C is mining an area that has been cleared by dry mining. That is, dry mining has removed the upper 20m+ of the dune.

### MINING POND D

#### **MPD 110**

MPD 110 is located on the second dune cordon from the ocean. The site consists of a scatter of artefacts across the top of the dune (40m x 20m) and

undecorated pottery on the surface. A dispersed *P. Perna* and oyster midden also occur along with a WBS lower grinding stone.

The site is of low significance and no further mitigation is required. We will continue to monitor it during surveys.

### **MPD111**

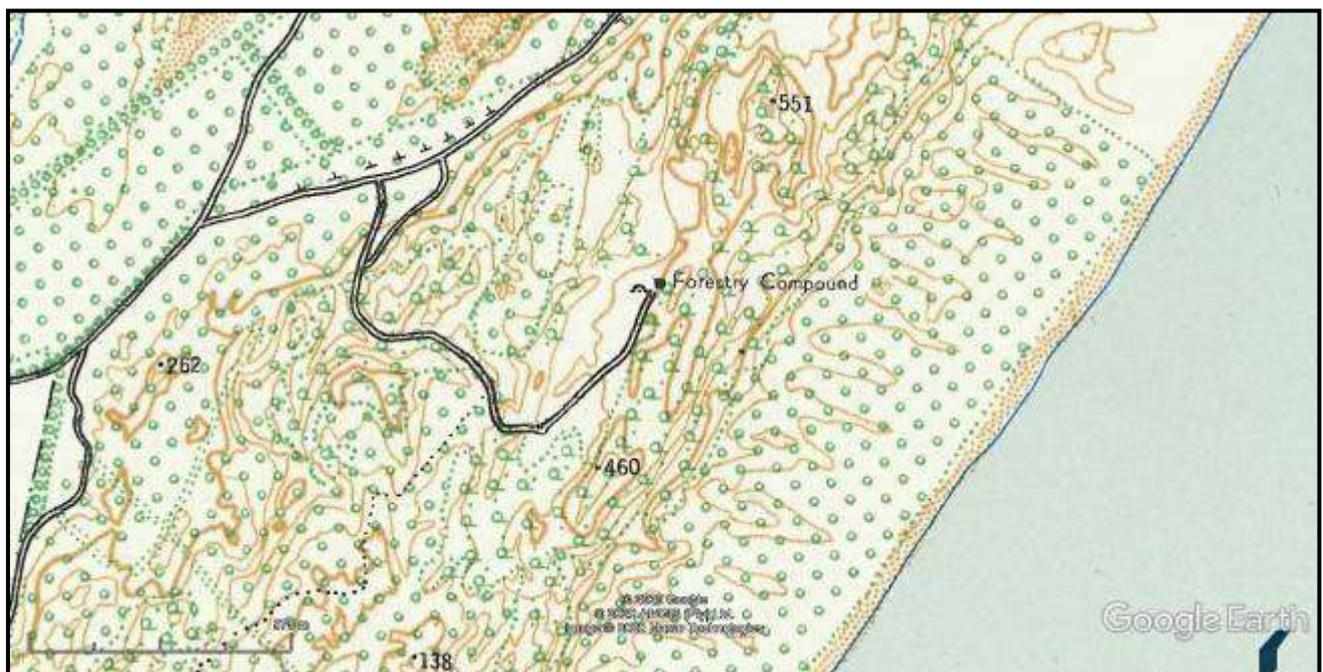
MPD 111 is located in the middle of the dune cordon system. The site occurs over a large (50x70m) area and consists of an extensive scatter of artefacts on the surface, as well as at least 3x shell middens. The site is probably a double occupation site, which is the same area used at different time periods. It is of medium significance due to the sheer abundance of artefacts. This is the first 20<sup>th</sup> century site to be recorded that post-dates the forced removals that occurred in the 1940s.

A quick desktop search with historical maps indicates that MPD 111 was in fact a forestry compound. On the 1:50000 maps, 1964 edition, there is a clear road leading to the compound (fig. 3). On the 1986 map, there is no sign of either the road or the compound which indicates that it was demolished by then.

During August and September we undertook metal detector surveys to sample the site and we have repeatedly re-visited it since.

The metal detector survey sampling results are discussed in this report.

**FIG. 3: THE 1964 MAP INDICATING THE FORESTRY COMPOUND**



## MINING POND E

### **MPE 181**

MPE 181 is located on the second dune cordon from the ocean. The site consists of a *P. perna* midden and a scatter (20m x 30m) of artefacts including a white beach sandstone fragments and undecorated pottery.

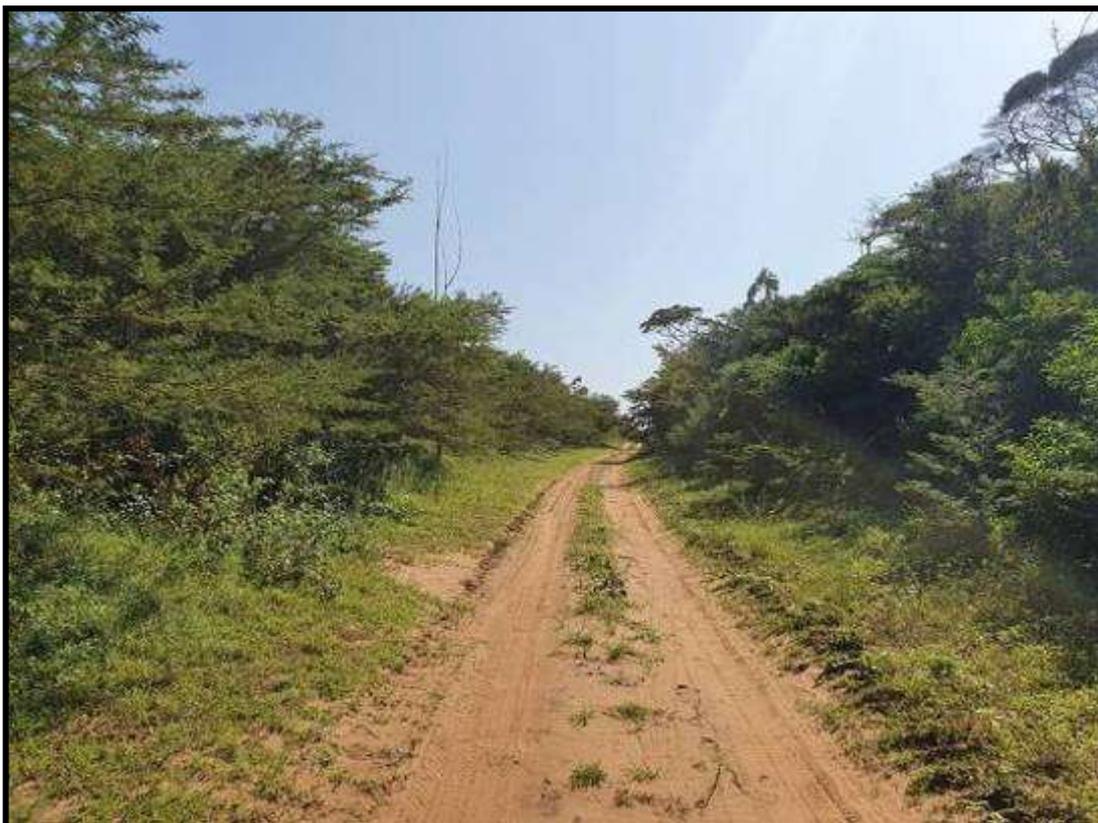
The site is of low significance and no further mitigation is required. We will continue to monitor it during surveys.

### **MPE 183**

MPE 183 is located on the second dune cordon from the ocean, on the back road to the current location of MPE. The site consists of *P. perna* fragments, thick and thin walled pottery, bovid bone and teeth and water worn pebbles, 130m along the road (fig. 4). The site may continue further into the forest on either side of the road.

The site is currently of low significance and no further mitigation is required. We will continue to monitor it during surveys.

**FIG. 4: MPE183**



## **MPE 184**

MPE 184 is located on the first dune cordon from the ocean. It consists of a scatter (40m x 50m) of artefacts across the top of the dune, including undecorated thin walled pottery, *P. perna* fragments and bovid bone (fig. 5).

The site is of low/ medium significance and will be monitored during future surveys. It was also sampled.

**FIG. 5: MPE 184**



## **MPE 185**

The site consists of a scatter of artefacts over a 20 x 30m area on the top of the dune. The artefacts consist of (fig. 6):

- Burnt and unburnt *P. perna*
- A lower grinding stone on white beach sandstone
- Large bovid bone
- Thin-walled pottery with a black burnish

The site probably dates to the Historical Period, and may be a single house occupation. The site is of low/ medium significance and will be monitored during future surveys. It was also sampled.

**FIG.6: MPE 185**



## **MPE 186**

The site consists of a scatter of artefacts over a 20 x 20m area on the top of the dune (fig. 7). The artefacts consist:

- 1x dispersed *P. Perna* midden
- An upper grinding stone

The site probably dates to the Historical Period, and may be a single house occupation. The site is of low/ medium significance and will be monitored during future surveys. It was sampled.

**FIG.7: MPE 186**



## RED DUNES

### RD 043

RD043 was located near the mine face and only a few artefacts could be analysed due to the 10m mine face safety rule (fig. 8). The site currently consists of a small *P. perna* shell midden (1m x 2m in size) and surrounding artefacts:

- *P. perna* fragments
- Medium bovid bone
- Upper grinding stone
- Undecorated pottery
- Possible human tarsal bone

The site is of low/ medium significance and will be monitored during future surveys. It was also sampled.

### RD 044

RD044 is located on a small dune on the seaside of the Red Dune system (fig. 9). The site has been (dry) mined with a small area left (10m x 15m). The artefacts include:

- Human cranium fragments and a premolar
- Pottery
  - Horizontal incisions on the lip
  - Undecorated rims
- Upper grinding stones
- shell

The site is of medium significance and will be monitored during future surveys. It was also sampled. The site appears to date to the Late Iron Age.

**FIG. 8: RD043**



**FIG. 9: RD 044**



### **METAL DETECTOR SURVEY OF MPD 111**

During the initial recording of the site we noted that there was an abundance of 20<sup>th</sup> century artefacts, as well as Iron Age artefacts on the surface. We undertook a metal detector survey over three days, during August and another two days during September, to sample the site. We continued to visit the site throughout the remainder of the year, doing surface sampling each time. The site is important as it is the final “occupation” of the dune system before mining commenced.

The Department of Forestry assumed control of this area in 1949 (Weisser and Marques 1979). They would have provided their staff with offices and accommodation in the form of a forestry compound. The earliest historical artefacts on this site date to the late 1940’s, whilst the latest date to the early 1980’s, and these fit the timeframe perfectly.

The artefacts include recent historical and archaeological finds:

1. Various historical glass bottles.

2. Pottery

a. Undecorated

b. Decorated

3. Shell fish

a. Black mussel

b. Oyster

4. Various metal artefacts

a. Nails

b. Corrugated iron

c. Wire

d. Bullet casing

e. Chain

f. globe

g. enamel bowls

h. remains of a colander

i. large fish hook

j. belt buckle

k. iron pots

5. Porcelain and kitchenware

6. Animal bone

a. Cow

b. Goat

c. Fish

7. Upper grinding stones

8. Coins

## 9. Bricks

Below are a few examples of the various artefacts we have sampled and recorded during our sampling surveys of MPD 111.

➤ Wine bottle with a lead foil

Lead foils were phased out from 1980 onwards for obvious health reasons (fig. 10).

**FIG. 10: WINE BOTTLE**



➤ Packer ware

Many, many hundreds of styles of bottles were manufactured, many of them standard “packer ware” or “generic” types used for a variety of products. This specific bottle more than likely held liquor (fig. 11).

The maker’s mark/ stamp at the base of the bottle identify it as a bottle made by Consolidated Glass Works (Consol). There is a very faint C inside the triangle meaning that the bottle was manufactured at the Pretoria plant. Pretoria Glass Works became part of Consolidated Glass Works in 1946, so the bottle dates after 1946 (fig. 11).

**FIG. 11: “PACKER WARE” BOTTLE**



➤ DGC bottle

This is an American bottle from the Diamond Glass Company (D.G.Co) of Royersford, Pennsylvania (1885-1990). This specific bottle was manufactured in 1961. DGC produced a wide variety of glass containers throughout their long history. The use for this bottle is currently unknown (fig. 12).

**FIG. 12: AMERICAN DGC BOTTLE**



➤ Soda bottle

Probable soda bottle, manufactured at the Talana Glass Works, outside Dundee (KwaZulu-Natal), in 1951. In 1954 Talana or Union Glass amalgamated with Consolidated Glass (fig. 13).

**FIG. 13: TALANA SODA GLASS BOTTLE**



➤ Chemist bottle

Any triangle maker's mark on a bottle base, found in South Africa, usually identifies the bottle as manufactured by Consolidated Glass. This bottle is a chemist bottle and could have held anything from poison to medicine, 2 ounces of it. It probably dates to the late 1950's (fig. 14).

**FIG. 14: CHEMIST BOTTLE**



➤ Milne's Australian whisky

Between 1906 until the 1980s were Australia's boom years, especially for blended whisky, and Australia was the world's fifth-largest whisky producer during most of this time. Milne's Whisky was bottled in Australia during the 1940's. Milne & Co. were a wine and spirits merchant founded in Adelaide in 1846. They successfully produced gin, brandy, wine and whisky. In 1898 acquired The Barton Distilling Company. The Barton produced a range of dark and white spirits for Milne & Co. brands. In 1946, Milne & Co. was acquired by Gilbey's, the successful London wine and spirit merchant. Gilbey's saw the potential in the Australian spirits market and had been importing various products into the country since the early 1900s. But realising they couldn't compete with more affordable local products due to tariffs on imported spirits, Gilbey's opened a sizeable distillery and bottling plant in Moorabbin, a suburb of Melbourne, in 1937. The Gilbey's Distillery eventually ceased production in the mid-1980s, and the original distillery buildings were eventually demolished in 2000.

According to Australian whisky historian, Chris Middleton, the Milne's blend likely contains whisky produced at The Barton Distillery in Adelaide, and possibly grain whisky from the Gilbey's Distillery in Moorabbin.

One Milne's bottle was located at the site (fig. 15).

**FIG. 15: MILNE'S SPECIALLY SELECTED WELL MATURED WHISKY 1940S BOTTLING**



➤ Vaseline Jars

We found numerous Vaseline jars on the site (fig. 16). All of the jars were manufactured by Consolidated glass works at their Pretoria plant which operated from 1946 onwards.

**FIG. 16: VASELINE JARS**



➤ Small. measured medicine vials

Several small vials were recorded (fig. 17). The vials would've contained medicine from a chemist and had small cork stoppers and sticker labels as identification. These are generic bottles.

**FIG. 17: MEDICINAL BOTTLES**

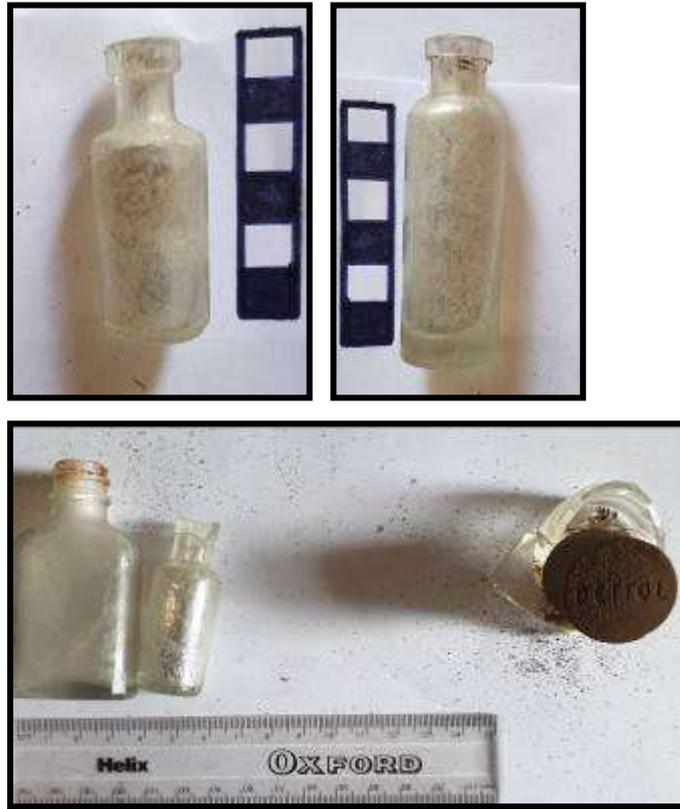


Fig. 17 also shows the remains of a glass Dettol bottle. Dettol, as a brand, was first introduced in 1932. It was first used for the cleaning and disinfecting of the skin during surgical procedures, but soon became a household name. Up to today Dettol continues to be the go-to disinfectant for millions of mothers worldwide. This specific type of glass bottle with the brown plastic cap dates to the late 1940's, early 1950's.

➤ Pond's Cold Cream

Pond's Cold Cream was a budget friendly, facial cleanser which was manufactured and sold from 1904 onwards. In 1932, the company opened a factory in Perivale, London and subcontracted manufacturing of its products elsewhere to increase its

global reach. By the end of the 1930s, Pond's products were being sold in 96 countries around the world.

An example of Pond's Cold Cream, 1950's is shown alongside one from the site (fig. 8)

**FIG. 18: PONDS COLD CREAM BOTTLE**



➤ Coronation Bricks

Several Coronation bricks were found on the site; presumably some of the compound buildings would've been built using Coronation bricks (fig. 19).

In 1898 the Storm Brothers start a brick factory on the Clairwood Flats in Durban and by 1902 they are a well-established company called The Storm Brothers Brickworks. From 1915 onwards they change from handmade bricks to machine-made bricks and their company now expands rapidly. In 1917, to commemorate the coronation of King George VI, they rename their company Coronation Brick and Tile Company Limited and it trades as this until 1977 when they become Corobrik (<https://www.corobrik.co.za/heritage>).

**FIG. 19: CORONATION BRICK**



- Cogwheel of a 1950's Phillips bicycle

A Phillips bicycle wheel cog was noted at the site. Phillips Cycles Ltd. was a bicycle manufacturing company based in Smethwick near Birmingham, England. Its history began early in the 20th century and ended in the 1980s by which time it had become part of Raleigh Industries. For a number of years, the company was the second-largest bicycle producer in Britain, after Raleigh. The company motto, which was carried on all its badges, was "Renowned the World Over".

**FIG. 20: THE COG AND A PHOTO OF A VINTAGE PHILLIPS BICYCLE**

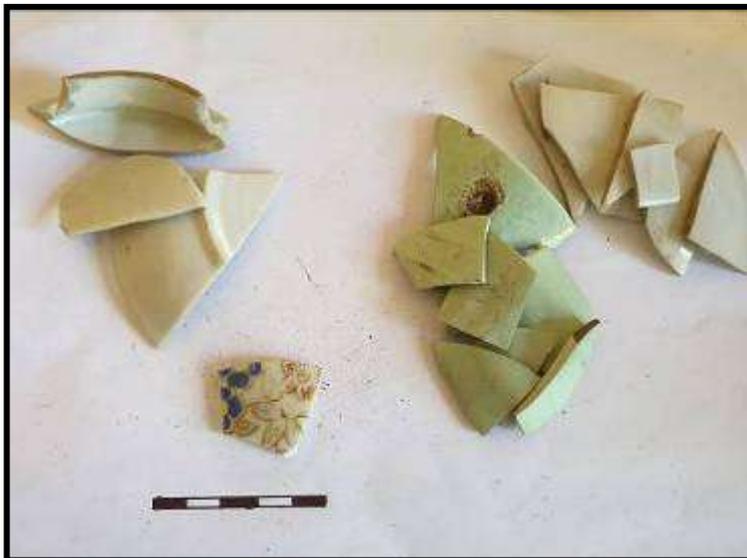


➤ J&G Meakin kitchenware

We are recording more of the J&G Meakin kitchenware fragments each time we surface sample. James and George Meakin were brothers who opened a pottery in 1851. In 1859 they moved their pottery to the outskirts of Hanley, UK. This gave them access to the river ports on the Mersey and they started exporting their kitchenware to the USA and the British Empire Colonies. The Meakin factories were at the cutting edge of technology for the time and by 1887 they are the largest potting company in Britain. Their aim was to provide attractive, yet strong and functional kitchenware to the markets they serviced. The firm was taken over by the Wedgwood Group in 1970. In 2000 production under the Meakin name ceased and their long-established works, Eagle Pottery, was then used for the production of Johnson Bros pottery. Eagle Pottery closed in 2004 when production was transferred abroad; the works were demolished in 2005.

They produced thousands of different patterns that should be datable, but as yet we have not been able to find any information on this specific pattern. We do know for a fact that it pre-dates 1970 (fig 21). One teapot was also recorded.

**FIG. 21: J&G MEAKIN KITCHENWARE**



➤ Sloan's Liniment

Sloan's Liniment is used for temporary relief of muscle or joint pain caused by strains, sprains, arthritis, bruising, or backaches. This medicine is also used to treat nerve pain (neuralgia) in people who have had herpes zoster, or "shingles." The manufacture of Sloan's liniment goes as far back as 1909, it was particularly popular during the 1950's, but you can still buy it today.

A single bottle was found on the site (fig. 22)

**FIG. 22: SLOAN'S LINIMENT BOTTLE AND ADVERT**



➤ Grunberger Wine

This was, by far, the most abundant bottle found on site (fig. 23). The original Grunberger, "The Prince of White Wines", was developed by Dr Alfred Baumgartner, a German Oenologist, and his colleagues at the Bergkelder, and first launched with great success in 1953.

**FIG. 23: GRUNBERGER WINE BOTTLE**



➤ Morgan's Pomade

Morgan's is a British men's beard and hair products company established in 1873 (fig. 24). Morgan's Pomade is still made today. Pomade was not only used to style hair, but it also hid grey hair.

**FIG. 24: MORGAN'S POMADE AVAILABLE TODAY (top) & MPD 111**

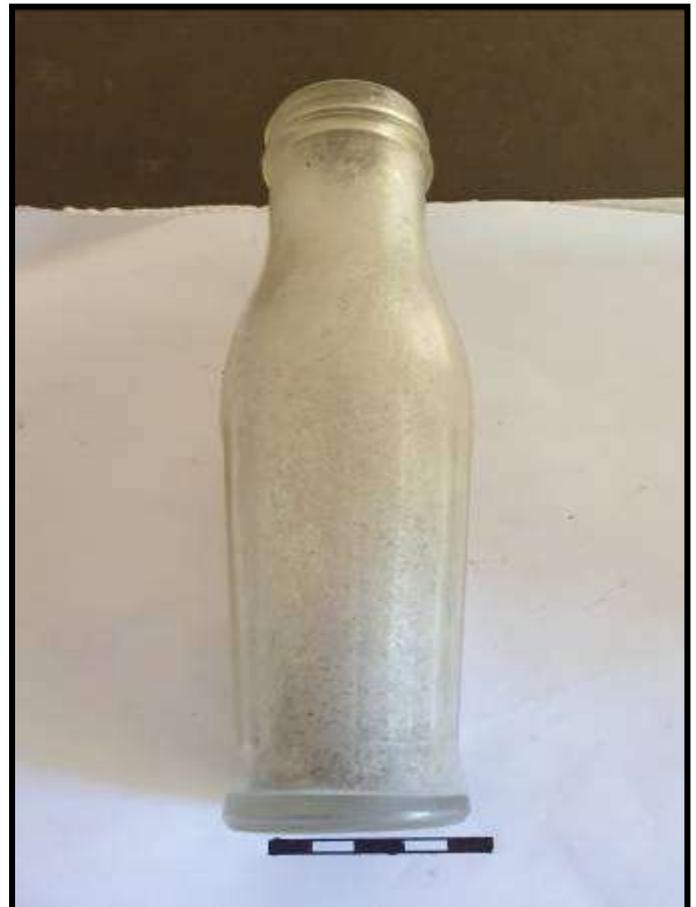


- Heinz Great Britain salad cream bottle

The Heinz Company was founded in Sharpsburg, Pennsylvania, in 1869 by Henry John Heinz (1844–1919), who was later to become nationally known as the “Pickle King.” By 1905 it had become the H.J. Heinz Company, the largest producer of pickles, vinegar, and ketchup (catsup) in the United States. By 1919 the company had more than 6,000 employees and 25 factories. After opening its first overseas office in London in 1896, the company opened its first UK factory in Peckham, south

London in 1905. This was followed by a factory at Harlesden, north-west London in 1919. Bombed twice in World War II, this factory remained in production until 2000. Production was started at a former munitions factory at Standish near Wigan in 1946, before the new factory at Kitt Green, near Wigan, opened in 1959. Heinz salad cream was invented in England in 1914 and went on to become one of their best sellers. Fig. 25 shows an advertisement for the bottle found at MPD111.

**FIG. 25: A HEINZ SALAD CREAM ADVERTISEMENT (1957) & MPD111**



➤ W Daly cooldrink bottle

W. Daly & Son is a cooldrink manufacturing company established in 1881, in Durban. They started off producing ginger beer and flavoured mineral waters and later progressed to the Daly's fruit cordials that we can still buy today. The companies' ability to adapt to the times is what keeps them going.

This specific bottle is a cooldrink bottle from the 1950's (fig. 26). The glass bottle itself was manufactured at Talana Glass works near Dundee. Talana amalgamated

with Consolidated Glass in 1954, thus it cannot post-date 1954. It could've been any flavour from plain soda water to pineapple.

**FIG. 26: DALY'S BOTTLE**



➤ Dewar's Whisky

Founded in 1846 by John Dewar. John Dewar & Sons Ltd has grown from a small wine and spirits shop in Perth, Scotland, to become a globally renowned blended scotch whisky.

This particular bottle is from around 1960 and part of their White Label range which is the cheapest of their ranges (fig. 27). Think of it as the economy car of whiskies.

**FIG. 27: A DEWAR'S WHISKY FROM MPD111 & 1960**



➤ Sauce bottles

Both bottles were manufactured at Talana glass. As mentioned before Talana glass amalgamated with Consolidated Glass in 1954, so both bottles pre-date 1954. They most likely held Worcester sauce, or pepper sauce (fig. 28).

**FIG. 28: SAUCE BOTTLES**



➤ Coins

Six coins were collected, ranging in age from 1952 to 1968. All of the coins are from South Africa. Fig's 29 to 33 show mint versions of these coins, while Fig. 34 shows the half cent we found on site. We used mint version photographs since the coins found on site were rather dirty and we did not wish to use cleaning products on them. The photos are true representations of what the site coins look like, although the dates may differ slightly.

**Coin 1 & 2:**

We found two South African one penny coins, one from 1950 and one from 1952.

Minted: 1951-1952

Period: King George VI (1937-1952)

Coin type: General circulation

Composition: Bronze

Creators: Thomas Humphrey Paget

George Edward Kruger-Gray

[https://en.ucoin.net/coin/south\\_africa-1-penny-1951-1952/?tid=50941](https://en.ucoin.net/coin/south_africa-1-penny-1951-1952/?tid=50941)

**FIG. 29: ONE PENNY**



**Coin 3:**

A South African sixpence from 1959.

Minted: 1953-1960 (fig. 30)

Period: Queen Elizabeth II (1953-1960)

Coin Type: General circulation

Composition: Silver

Creators: Mary Gillick

George Edward Kruger-Gray

[https://en.ucoin.net/coin/south\\_africa-6-pence-1953-1960/?tid=50629](https://en.ucoin.net/coin/south_africa-6-pence-1953-1960/?tid=50629)

**FIG. 30: SIX PENCE**



**Coin 4:**

South African two cents coin, 1968 (fig. 31)

Minted: 1968

Period: End of Charles Robberts Swart's Presidency

Coin Type: Commemorative coin

Composition: Bronze

Creators: Thomas Sasseen

Jan van Zyl

[https://en.ucoin.net/coin/south\\_africa-2-cents-1968/?tid=17588](https://en.ucoin.net/coin/south_africa-2-cents-1968/?tid=17588)

This is a commemorative coin and thus of limited edition.

**FIG. 31: COMMEMORATIVE TWO CENTS**



**Coin 5:**

South African half cent, 1962

Denomination: Half cent (fig. 32)

Year: 1961-1964

Coin Type: Circulation coin

Composition: Brass

Creators: Willie Myburgh and George Edward Kruger-Gray

**FIG. 32: SOUTH AFRICA HALF CENTS**



**Coin 6:**

South African half penny, 1955 (fig. 33)

Minted: 1953 to 1960

Period: Queen Elizabeth II

Coin Type: Circulation Coin

Composition: Bronze

Creators: Mary Gillick and George Edward Kruger-Gray

**FIG. 33: HALF PENNY**



**FIG. 34: THE HALF CENT COIN FROM MPD 111**



➤ Metal objects

Fig. 35 to 37 shows an assortment of metal artefacts from the site.

**FIG. 35: METAL ARTEFACTS**



From top left to right:

- Iron pot
- Padlock (small)
- Padlock (Large)
- An assortment of nails
- An iron hook
- A belt buckle

**FIG. 36: METAL ARTEFACTS**



From top left to right:

- globe
- remains of a colander
- lid?
- fishing hook
- belt buckle
- bolt
- metal caps
- remains of an enamel bowl

**FIG. 37: METAL ARTEFACTS**



From top left to right:

- bicycle parts
- bicycle chain and nails rusted together
- Bottle caps
- Nail
- Front end of a spoon
- padlock

➤ Bottle tops

Various bottle tops and can pull rings were noted on the site (fig. 38).

**FIG. 38: BOTTLE TOPS AND PULL RINGS**



From left to right:

- Foil caps
- White Horse whiskey cap
- Robertson's spice cap
- Clover milk closure
- Black Label crown top
- Black Cat peanut butter
- Pop tabs from the 1970's

➤ Personal effects

Several personal artefacts were recorded from the site (fig. 39).

**FIG. 39: PERSONAL ARTEFACTS**



From left to right:

- Glass torch lens
- Plastic comb
- 1x bullet casing (description to follow)
- Screw in globe
- Wire bracelet
- Black shale slate
- Torch
- Sardine tin

The single bullet casing was recorded at the site (fig. 40). The head stamp on the casing reads A77 7, 62 R1M1. South Africa started manufacture of the 7, 62 rounds in 1961. South Africa became a republic on the 31<sup>st</sup> of May 1961 and started to phase out the .303 British rounds in favor of the 7, 62. The first cartridges were manufactured at the Ammunition Branch of the SA Mint and later on by the then Armscor. We have recorded .303 casings at a few other older sites.

The A on the head stamp identifies the manufacturer as Armscor, while the 77 refers to the date. This bullet was manufactured by Armscor in 1977. 7, 62 is the caliber designation and R1M1 refers to South African military surplus ammunition.

**FIG. 40: R1M1 CARTRIDGE CASING**



➤ Pottery

Pottery from at least two periods is found at the site. The one has circular impressions associated with Blackburn pottery (700 – 900 years old, or Group 5 pottery). The second group appears to be more recent and is probably related to the 20<sup>th</sup> century, if not the 1950s – 1960s. One of the pots has the hole where rope would have gone through. Fig. 41 shows these two shards

**FIG. 41: POTTERY FROM MPD111**



➤ Grooved pebble

A single stone with two grooves was found (fig. 42). The grooves are much worn and may be associated with the Blackburn occupation at the site. These have been associated with stone sinkers or fishing net weights.

**FIG. 42: GROOVED PEBBLE**



MPD 111 is significant in the fact that we had only recorded sites that predated the forced removal of the community in the early 1940s. MPD 111 is literally the last (formally) occupied site in the Zulti North mining lease. It completes a near 2000 year history of the continual human occupation of the dunes. This does not include the Early, Middle and Late Stone Age sites that have been occasionally recorded and date from 1.5 million years ago to 3 000 years ago.

The artefacts at the site give a clear date of occupation late 1940's to the early 1980s. The date when the Forestry Station closed would be in government records. The artefacts suggest that the people did not have luxurious items and they tend to be of general use. While food items were bought, the people also used locally available food such as goat, cattle, fish and sea food, and were probably more reliant on the locally available food.

## **EXCAVATIONS**

Only one site was excavated in 2020: MPE187. MPE187 is located at near the base of first dune cordon. The top of the dune is at 75m asl, while the site is at 50m asl. This means there is approx. 25m of dune above the site, and this already suggests that it will be relatively old. For example, the oldest Early Iron Age sites (1800 years old) are 1m – 1.5m below the current surface such as MPE1.

MPE187 was noted by a cutting made by the drilling team. There was a thick and long cultural deposit that extended for at least 30m along the cutting (fig. 43). We requested an excavator to remove a section of the dune up to 1m above the deposit, for at least 5m into the dune. This was 3m – 5m in depth (fig. 44). This meant that we would have to manually remove the last 1m of deposit. This was undertaken for an area of 6m x 3m at the beginning of the excavations, so as to see how far into the dune the site extended. The 8m along the cutting would give an idea of how many middens there could be along the cutting. The rest of the cutting will be removed during future excavations. The most notable feature of the cultural horizon in the cuttings was that there were areas of extremely high density of charcoal. This is very rare for the the dune system and most excavations would only yield 50-100g of charcoal per site, in total.

This is a brief summary of the excavated finds and is not meant to be a full analysis, as that is beyond the scope of work of this project.

All shell middens are excavated in their entirety when undisturbed. However, we select the best example of each lens bulk sample these. Bulk sampling implies that every artefact and ecofact is sorted and curated for storage. Normal sampling would only keep the important finds (such as pottery, charcoal, bone, adornments), shell measurements are taken, but the shell itself is discarded after sorting and weighing. This is a standard practice for shell midden excavations and is aimed at reducing required storage space at the relevant institutions.

**FIG. 43 PART OF THE CULTURAL HORIZON BEFORE EXCAVATOR ACTIVITY**



**FIG. 44: TOPSOIL REMOVAL<sup>1</sup>**



### **Excavations & Stratigraphy:**

Once the excavator had removed the sand to our required level, we then proceeded to remove approx. 1m of sand in a 4m x 6m area manually. We did not want to expose the entire cleared area, but only what we could excavated in this season.

The excavation was divided into 1m x 1m squares, and then subdivided into 50cm x 50cm quads. This allows for better control over shell midden excavations when trying to determine the stratigraphy, as well as for handling the volume of deposit.

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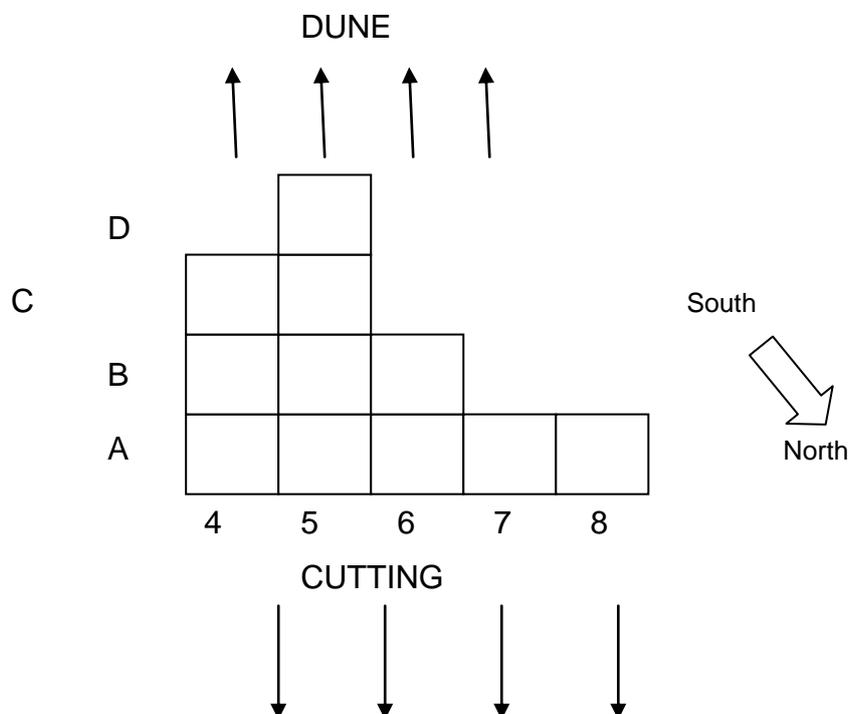
<sup>1</sup> Yellow line indicates the location of the shell midden

A total off 11 squares were excavated, and this indicated that the site extends eastwards under the main dune (fig. 45). From the excavations the main lenses were as follows:

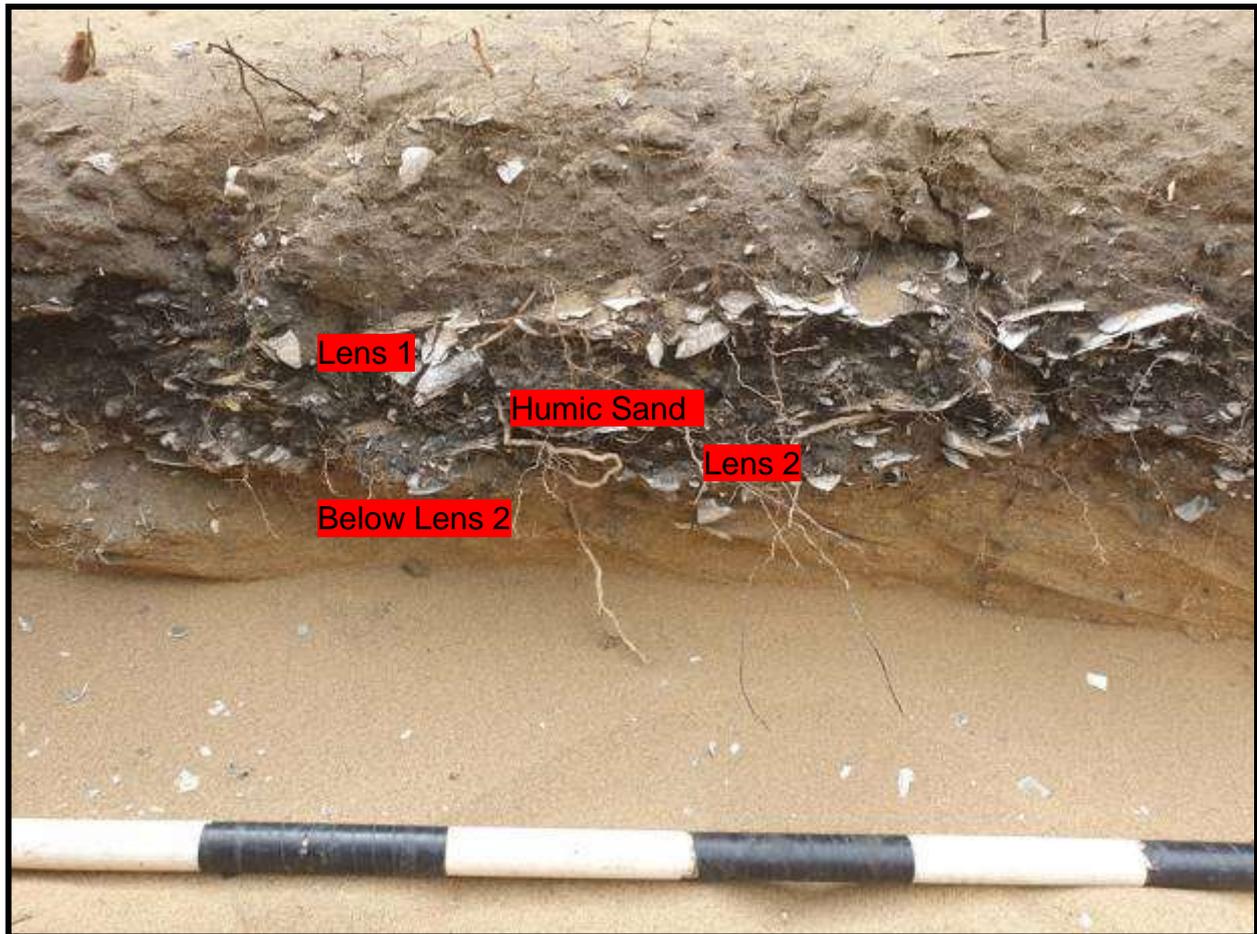
- Above Lens 1 (303.24dm<sup>3</sup>)
- Lens 1 (201.735dm<sup>3</sup>)
- Black Humic Sand (18.73 dm<sup>3</sup>)
- Humic Layer (15dm<sup>3</sup>)
- Above Lens 2a (51.24dm<sup>3</sup>)
- Above Lens 2 (64.995dm<sup>3</sup>)
- Lens 2a (41.25 dm<sup>3</sup>)
- Lens 2 (448.725dm<sup>3</sup>)
- Below Lens 2 (15dm<sup>3</sup>)

Lens 1 is a less compacted lens with a brownish sand underneath it. In Squares A/B/C 4 – 5. Lens 2 is a compacted shell lens with a lot of charcoal. As the lens moves southwest and southeast, there is a Black Humic Layer and a Humic Layer between the two lenses (fig. 46). The two Humic Layers occur in separate areas.

**FIG. 45: SITE EXCAVATION MAP**



**FIG. 46: MAIN STRATIGRAPHY AT MPE187**



The lenses varied from 2cm to 10cm in depth. There does not appear to be a large time difference between Lens 1 and Lens 2 and it might be part of a continual occupation. There are no Aeolian, or sterile, layers between the lenses that would suggest site abandonment. The 'Ash Pit' does have a single layer of yellow sand but this is not Aeolian.

### **Results:**

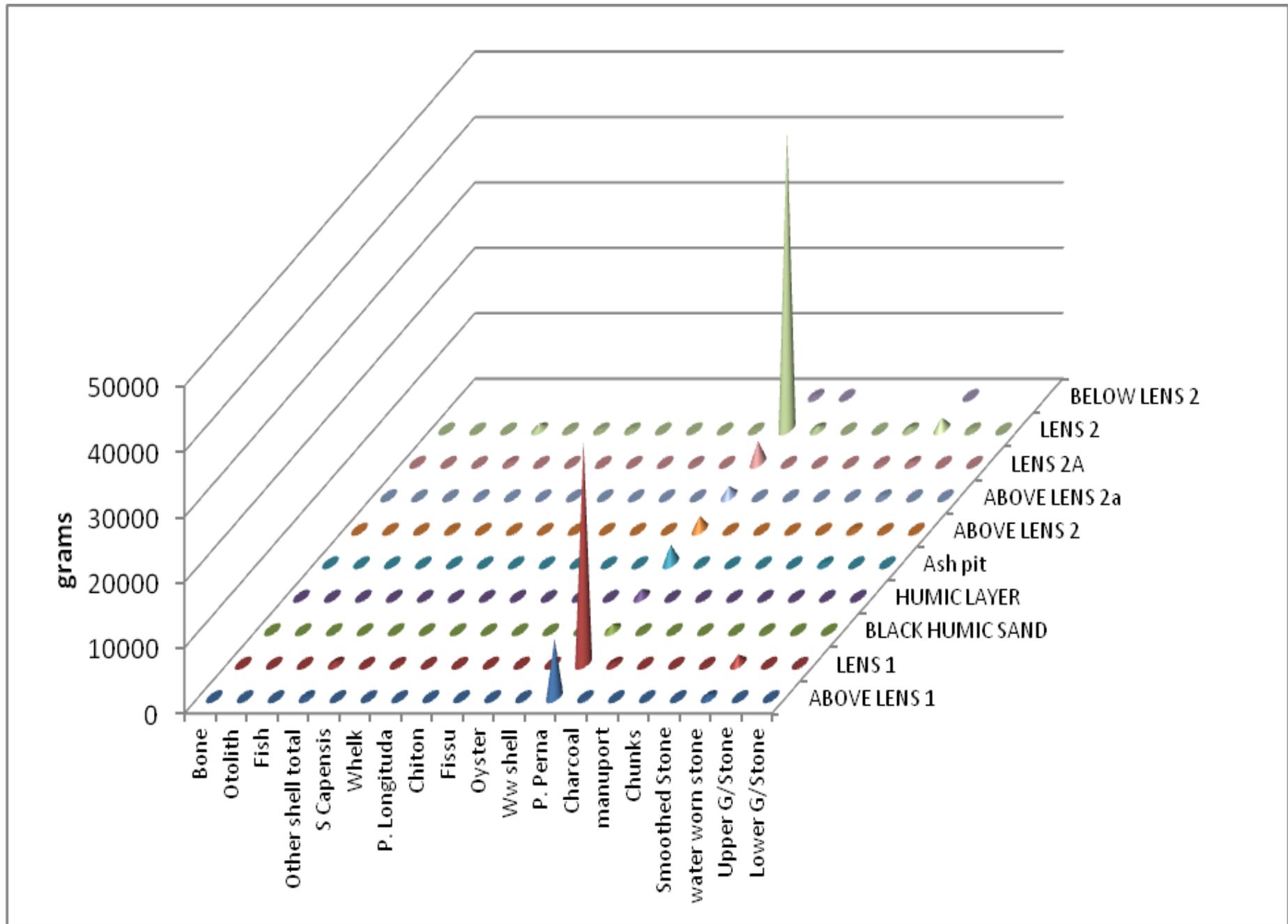
Table 1 shows the results from the excavations, while Figure 47 illustrates these results.

*Perna perna* is the most abundant artefact/ecofact type from the excavations. This is followed by Waterworn stone, and charcoal. The first noticeable feature of the site is non-occurrence of pottery and very few faunal remains.

**TABLE 1: ARTEFACTS FROM MPE187**

	Lens	Grams/ frequency	ABOVE LENS 1	LENS 1	BLACK HUMIC SAND	HUMIC LAYER	Ash pit	ABOVE LENS 2	ABOVE LENS 2a	LENS 2A	LENS 2	BELOW LENS 2	Total
	Buckets	litre	303.24	201.735	18.75	15	82.5	64.995	51.24	41.25	448.725	15	18636.525
<b>Faunal</b>	Bone	g	0.5	0	0	0	0	0	0	0	3		3.5
	Otolith	g	1	0	0	0	0	0	0	0	0		1
	Fish Bone	g	0	1	0	0	0	0.5	0	0	0		1.5
<b>Other shell</b>	Other Shell Total	g	144.5	385	10.5	16	10.5	52.5	42	108	732		1501
	S Capensis	g	19.5	41	0	0	0	16.5	3	8	61		149
		n	9	24	0	0	0	8	1	4	27		73
	Whelk	g	22	64	0	6	0	0	0	22	130		244
	P. Longituda	g	18	6	0	0	0	0	0	0	150		174
		n	4	6	0	0	0	0	0	0	12		22
	Chiton	g	2	0	0	0	0	0.5	0	8	7		17.5
	Fissurelidae spp.	g	1.5	2	0	0.5	0	0	0	0	9		13
Oyster	g	0.5	22	0	8	0	15	0	44	27		116.5	
Waterworn shell	g	11.5	7	0	0.5	0	0.5	4	0.5	59.5		83.5	
<b>Perna perna</b>	Left	n	409	1555	42	38	42	89	108	130	2190	2	4605
	Right	n	415	1590	41	43	39	84	89	124	2209	5	4639
	Total Weight	g	8891	34014	921.5	1077.5	2792	2052	1460	3249.5	45700.5	110	100268
<b>worked shell</b>	Nassa. beads	n	2	4	1	0	0	0	1	0	18	1	27
	Donax Scraper	n	0	0	0	0	0	0	1	0	0		1
	Coral	g	0	0	0	0	0	0	0	0	1		1
	Charcoal	g	60	245	52.5	16	39.5	28	10	38	511	0.5	1000.5
	Soil Sample	n	0	0	0	0	1	0	0	0	0	0	1
<b>Stone</b>	manuport	gt	1	0	0	0	0	4	0.5	0	18		23.5
		n	1	0	3	0	2	0	1	0	1		8
	Chunks	n	1	0	0	0	0	0	0	0	1		2
	Smoothed Stone	g	50	26	0	20	6	10	0	46	358		516
	Waterworn stone	g	376	1319	54.5	40	164	126	138	192	1762	0.5	4172
	Upper G/Stone	g	0	20	10	0	0	40	0	0	122		192
n		0	1	1	0	0	2	0	0	1		5	
	Total Weight	g	9596	36132	1050	1176	3012	2326	1658	3664	49608	112	108334

**FIG. 47 TOTAL WEIGHTS PER LAYER**



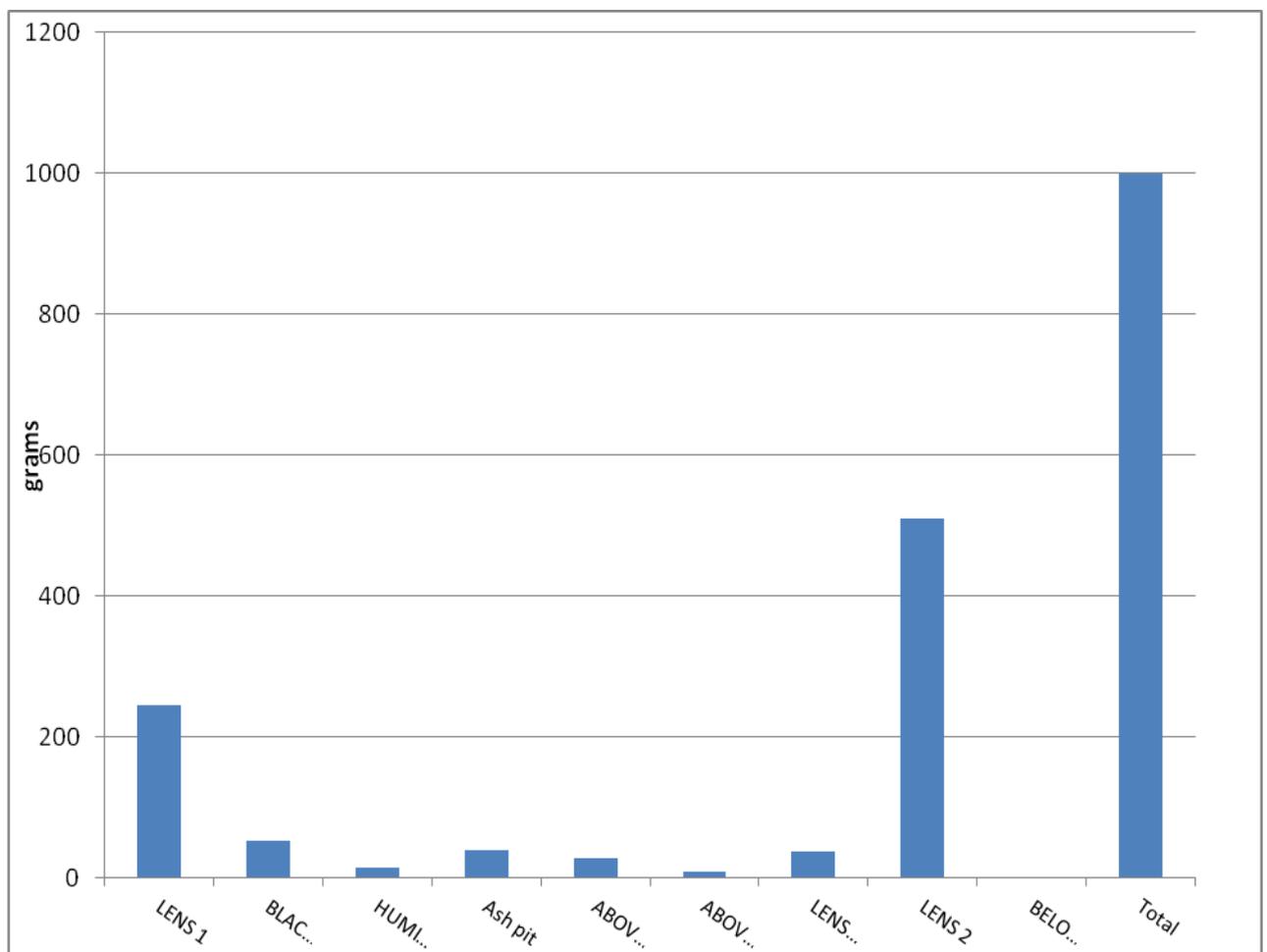
## Faunal Remains

Very few faunal remains have been excavated so far: 3.5g. This consists of one fragment of adiagnostic bone, 3 fragments of fish bone, and an otolith. This is very irregular for a shell midden in the mining lease.

## Charcoal

Charcoal occurs in all layers, but mostly in Lens 2 and then Lens 1 (fig. 48). The charcoal has been dumped with the middens, or as a separate layer between the two middens. There is very little ash in these layers, apart from Ash pit. Thus the charcoal is not from the main hearths.

**FIG. 48: CHARCOAL WEIGHTS PER LAYER**



A total of 1kg of charcoal was excavated from the site, of which half is from Lens 2. This is an exceptionally high amount of charcoal, and could be more than all of the previously excavated sites combined. Moreover, the charcoal is in situ and between defined lenses: most of the times it is scattered and treated as possible intrusion. The charcoal lenses extend for at least 15m southwards. Charcoal is important as it

is used for radiocarbon dating as well as tree species identification. The amount of carbon from MPE187 is rare and highly significant.

### **Worked shell and stone**

*Nassarius kraussianus* (or *Nassa*. for short is an estuarine shell “cream-buff with purple markings but usually covered with grey or green algae growth” (Richards 1989:62). These are often used as beads for necklaces from as early as the Middle Stone Age. Since *Nassarius kraussianus* has no nutritional value, their occurrence is automatically associated with beads.

A total of 27 *Nassa* beads were recorded of which most came from Lens 2. These were whole shells or fragments thereof.

A ‘Donax scraper’ is a term used in the Western Cape for a *Donax serra* (white mussel) that has been worked along the edge to be a scraper. The scraper is used to remove fat, e.g. from animal skin. In KwaZulu the *Donax lubricus* is probably used.

A fragment of a “Donax scraper” was recorded from Lens 2a.

A single small waterworn stone, with a hole at the apex was recovered from Lens 2 (fig. 49). This could be a natural occurrence where a piece of quartz pops out of the stone, or it was drilled to be a pendant.

**FIG. 49: POSSIBLE WORKED STONE**

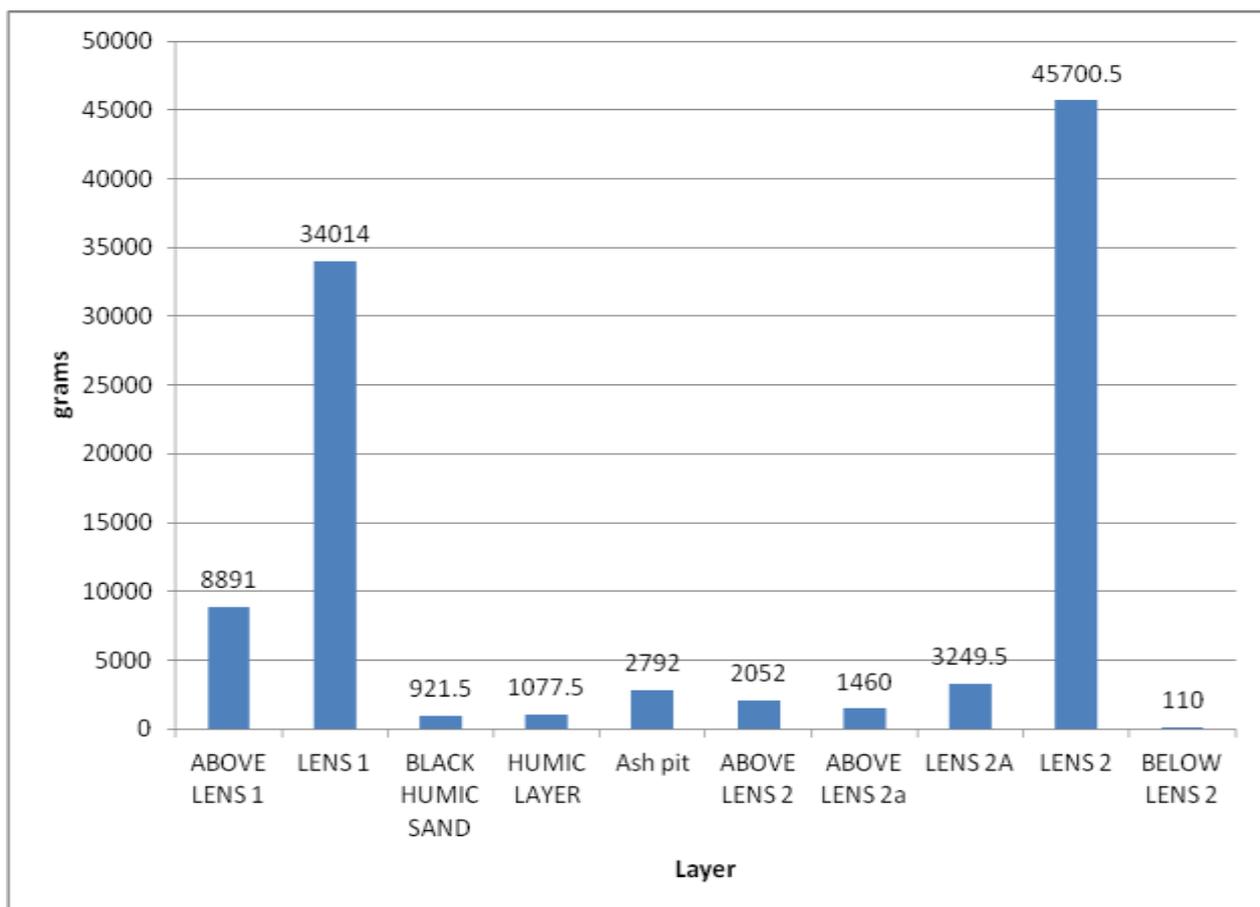


## Shell

The main type of shell from the excavations is *Perna perna* (brown mussel). These occur on the rock outcrops along the beach and are an important protein source. When the shell middens occur at the beach they tend to be shell processing sites, while they are domestic middens inland. The analyses always separate *P. perna* from the other shells due to the abundance of the mussels obscuring other species in the graphs.

A total of 100.268kg of *P. perna* was excavated from 11 squares. Lens 2 had the most *P. perna*, followed by Lens 1 (fig. 50). Most of the *P. perna* is unburnt suggesting it was cooked in a container of sorts, since the shell had no contact with charcoal./fire, something we noted this during the sorting of the material. There is no pottery at the site thus some other form of cooking would have been used.

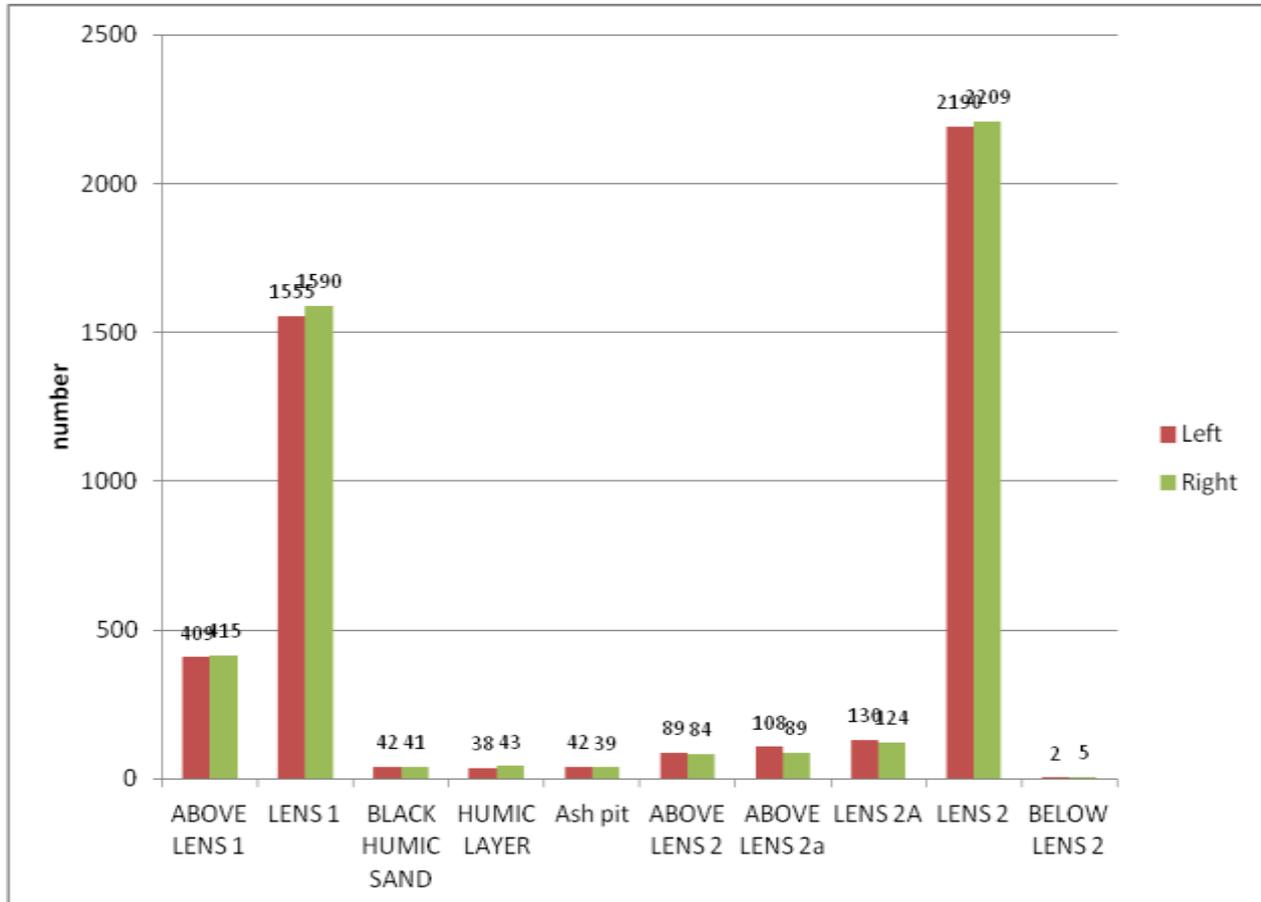
**FIG. 50: PERNA PERNA WEIGHTS PER LAYER**



The MNI (minimum number of individuals) for *P. perna* shows that a total of 4639 individual shells were eaten, so far, at the site. Lens 2 had the most with a total of

2209 individual shells, followed by Lens 1 with 1590 (fig. 51).. If there was a group of 10 people at the site this would mean 31 mussels per person per week for Lens 2. This is not a large number of mussels; however we have only started the excavations and these numbers will change as we continue.

**FIG. 51: LEFT AND RIGHT MUSSEL FREQUENCIES AT MPE187**



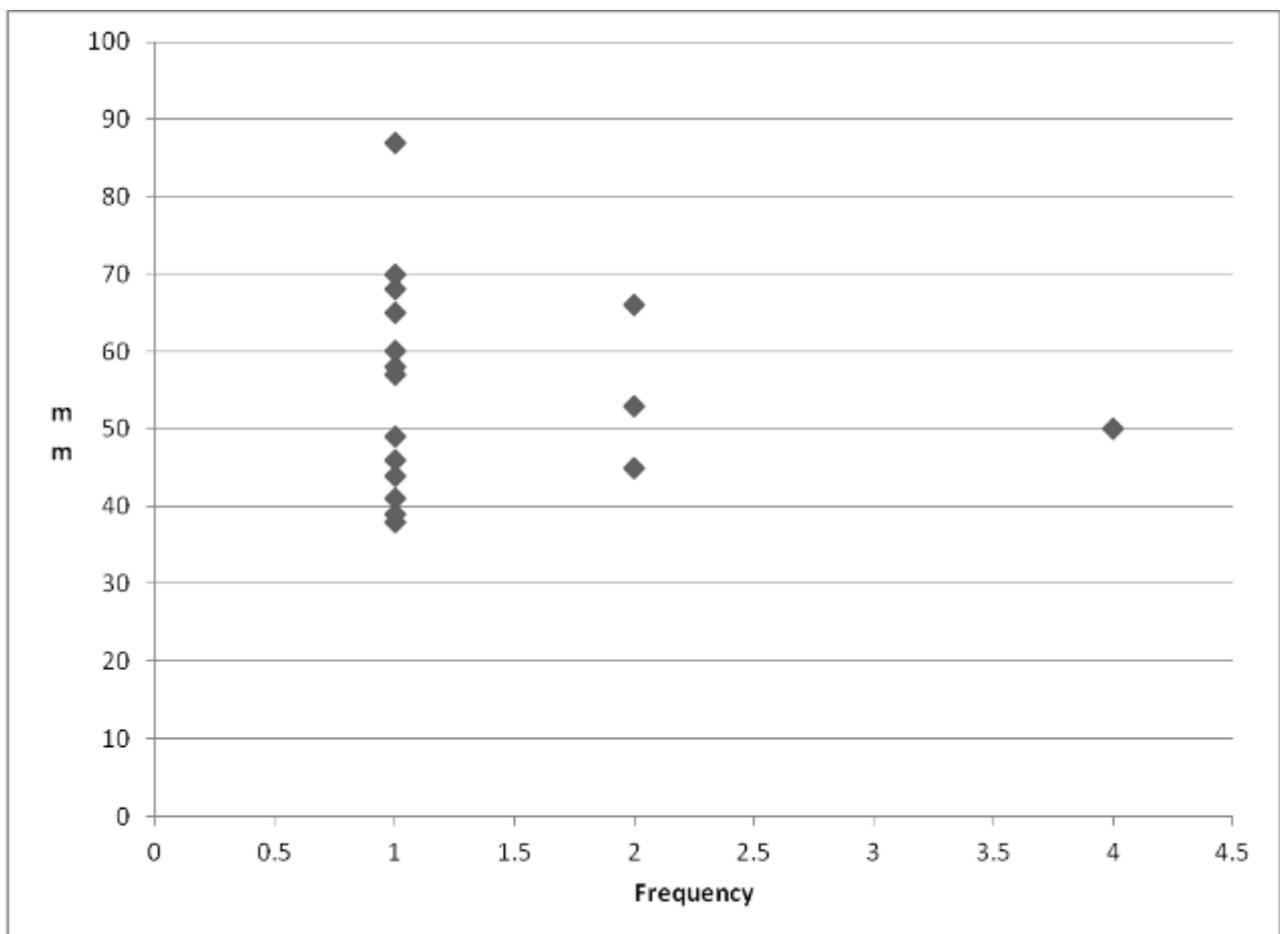
The size of *P. perna* is used to determine gathering methods. The reasoning is that a wide range of sizes would indicate mass gathering activity, while targeted sizes would result in a skewed size plot. Unfortunately once can only measure unbroken *P. perna* to determine their sizes, unlike the black mussels (*C. meriodanalis*) where the internal scar is related to size. Most of the *P. perna* break within the midden and as part of site taphonomy. This results in low numbers of measurable shell. Table 2 summarises the data from measured *P. perna* for all layers. Fig. 51 shows the individual sizes.

The shells are on average small in size (54cm) with a large standard deviation. This suggests that there was mass harvesting from the rock outcrop.

**TABLE 2: PERNA PERNA LENGTHS FROM MPE187**

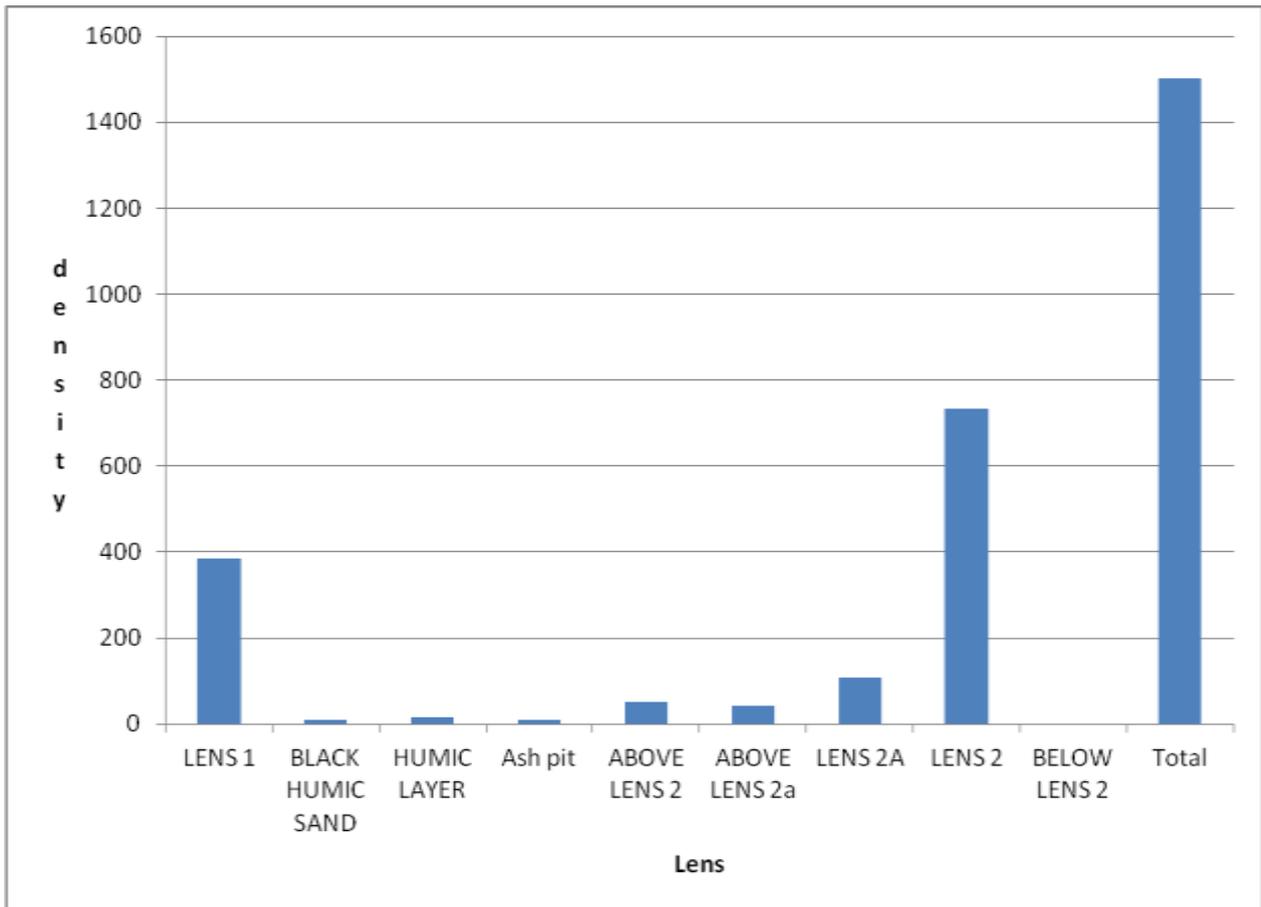
	Left	Right	total
Mean	54.2	54.46153846	54.34782609
Median	51.5	50	50
Max	87	70	87
Min	38	41	38
Frequency	10	13	23
Std deviation	14.00634777	10.44521728	11.82296954

**FIG. 51: PERNA PERNA LENGTHS AT MPE187**

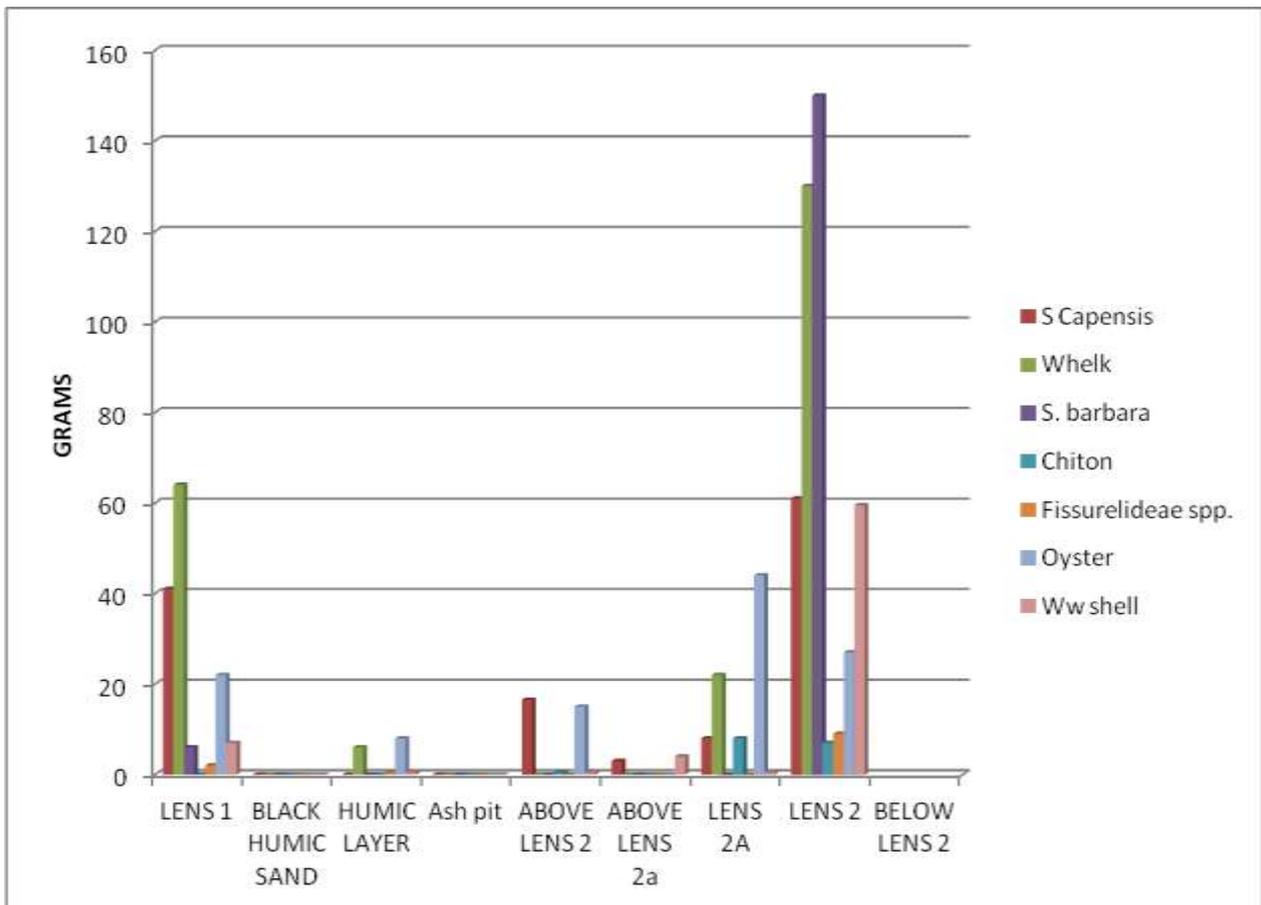


Other shell species were present, and most of these would be additional food sources. Shell such as *Littorina spp*, *Fissurelidae*, and *Veneridae* probably came in with other shells and were not eaten. These can be used as sea temperature indicators *Amphineura*, commonly referred to as chitons, may have been eaten. There are at four species in KwaZulu-Natal (Richards 1989). Fig.'s 52 and 53 show the types of "other shell" (i.e. everything but *P. perna*).

**FIG. 52: SHELL SPECIES TOTAL WEIGHTS FROM MPE187**



**FIG. 53: SHELL SPECIES PER LAYER**



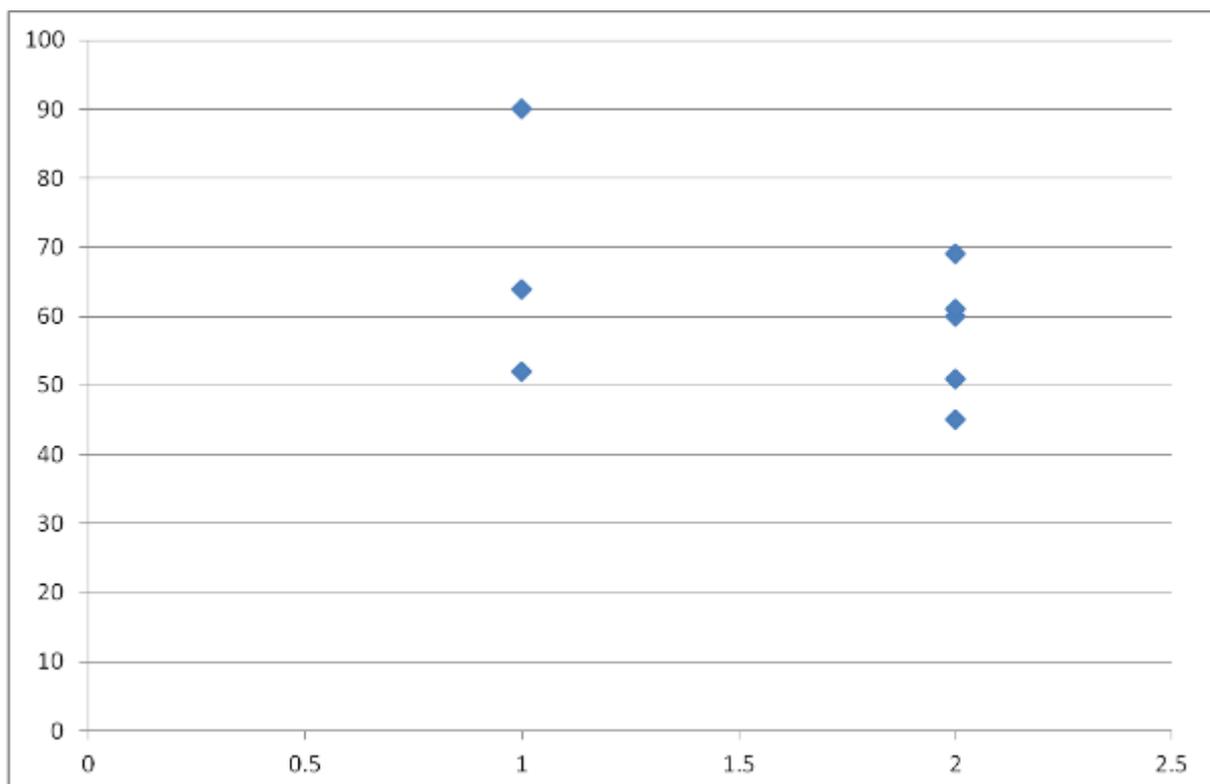
Lens 2 has the widest variety of 'other shell' followed by Lens 1 with nearly half of the amount. *Scutellastra barbara* is the more commonly occurring species, although some may be *Scutellastra longicostra*. This is followed by the slightly smaller *Siphonaria capensis*. These are larger limpets where the foot is used for food.

Table 3 gives the statistics of the limpets, while figures 54 and 55 show their lengths. The sizes and standard deviations suggest that these species were also mass harvested. We expect that these numbers will change to a small degree as excavations progress.

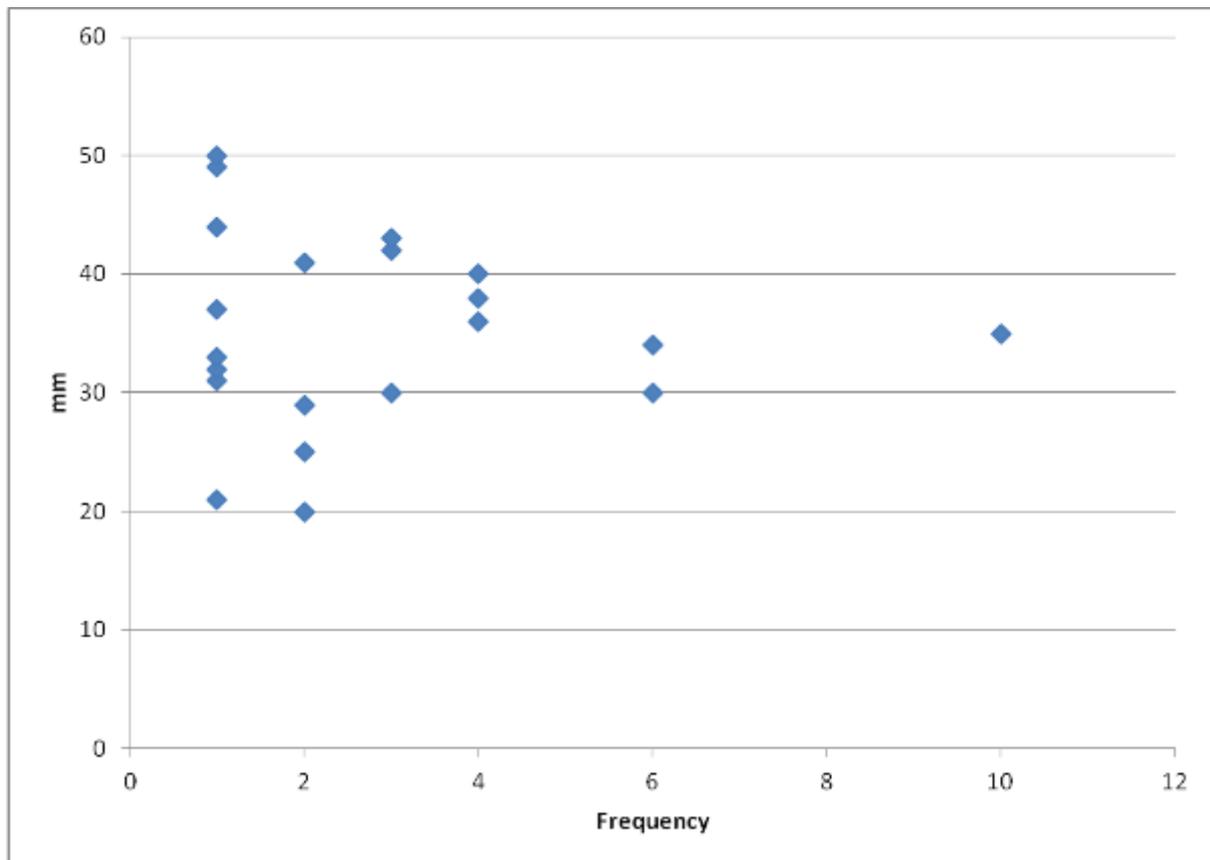
**TABLE 3: SIZES OF LIMPETS AT MPE187**

	<b>S capensis</b>	<b>S barbara</b>
<b>average</b>	34.75	59.85
<b>median</b>	35	60
<b>max</b>	50	90
<b>min</b>	20	45
<b>frequency</b>	59	13
<b>Std</b>	6.30	12.10

**FIG. 54: SHELL LENGTHS OF S. BARBARA**



**FIG. 55: SHELL LENGTHS OF S. CAPENSIS**



Whelk is the third most shell species eaten at MPE187. The data is slightly misrepresentative in that there were a few large whelk fragments that would be the equivalent of 10+ limpets. Most of the whelk occurs as fragments and thus frequencies could not be used.

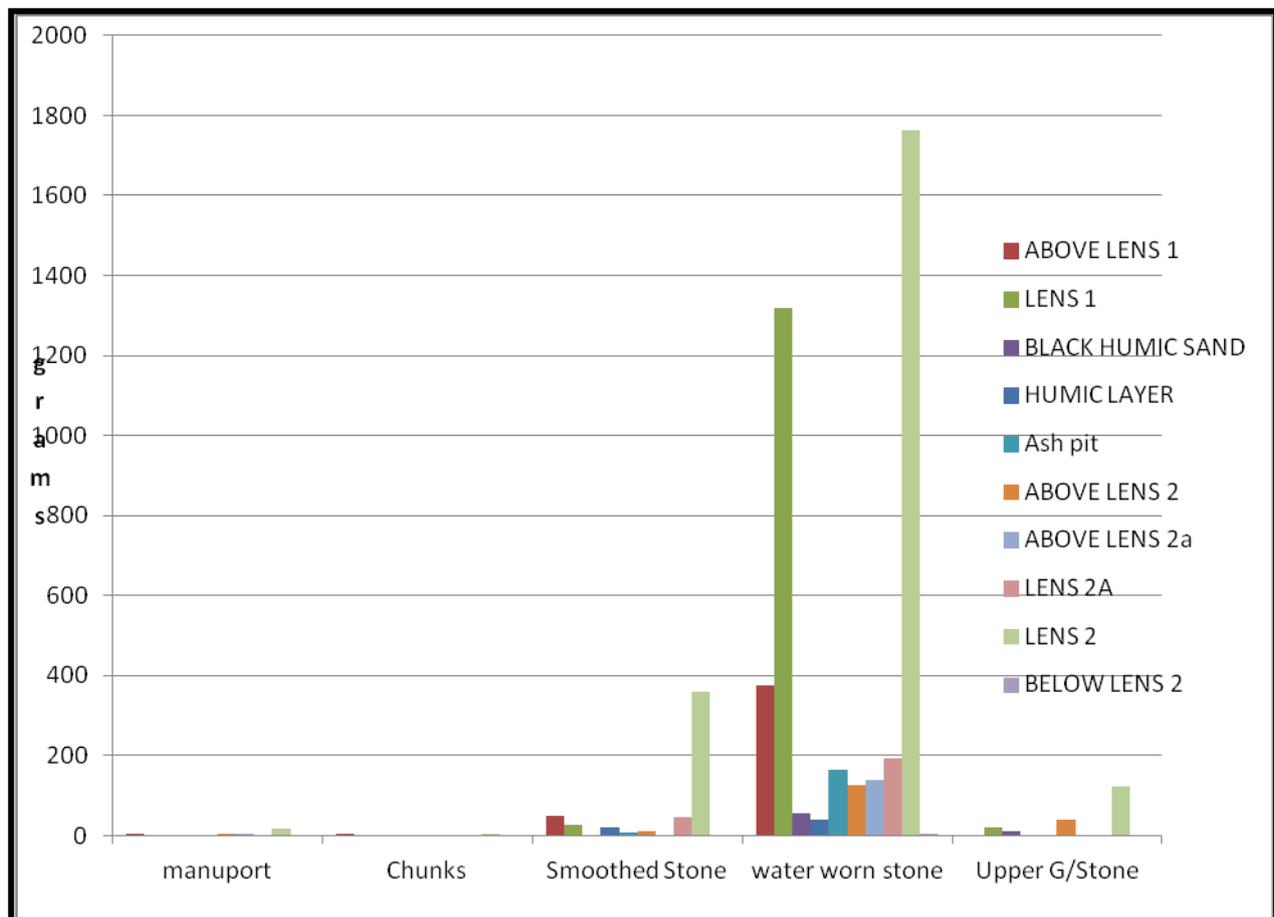
Oyster was surprisingly under represented at the site, although it nearly equaled *S capensis* in weight.

Waterworn shell is shell fragments on the ocean floor that that attach to the byssus of a bivalve. It has been argued that the amount of waterworn shell is related to sea turbidity where low turbidity will result in more waterworn fragments adhering to the byssus. High turbidity affects algae growth, sea temperatures and how well mussels 'clean' themselves. We started recording waterworn shell/stone since the beginning of the RBM project, and continue to do so for future research. Any meaningful results would require several stratified deposits, or dating of several sites for a chronological sequence.

## Stone

The excavations at MPE187 yielded very few stone artefacts and ecofacts (fig. 56).

**FIG. 56: STONE CATEGORIES AND WEIGHTS AT MPE187**



Manuports are pieces of unworked stone that have been brought into the area, i.e. they do not occur naturally. Eight manuports were noted and these are cryptocrystalline silicates (CCS). CCS are nodules of volcanic lava that have cooled to form a glass-like structure. The nearest source is the Ubombo Mountains and the large river systems where they are brought downstream from the Drakensberg. These are one of the more favoured raw materials used in the Late Stone Age.

Chunks are pieces of stone that have had one or two flakes removed from them. They are stone tools and are considered to be debitage. Only two chunks were noted from the excavations. Chunks are associated with the Late Stone Age.

Smoothed stone are pebbles varying from 2cm – 10cm in size and have been smoothed by seawater abrasion, or by human activity. These are bigger than waterworn stone and would not be associated with the byssus of mussels. The larger pebbles could be small upper grinding stones or hammer stones.

Waterworn stone are the small beach pebbles and stones associated with mussels. While Lens 2 has the most waterworn stones, it is also much larger, and Lens 1 has a higher density of waterworn stone.

Only five small upper grinding stones were excavated. These are much smaller than the upper grinding stones associated with sorghum, millet and maize. The shell middens are unlikely to yield many grinding stones as there will occur in the living area, and not the rubbish dump.

No lower grinding stones were excavated.

## **GENERAL DISCUSSION**

The startup test excavations at MPE187 began with 11 x 1m x 1m squares. These excavations focused on the shell middens that were exposed by the cutting. Our initial assessment of the site was that it dated to the Late Stone Age. This would then make the site of very high significance in the mining lease.

After the main analyses of this site, we compared MPE187 to a known Late Stone Age (LSA) site dating to 2 000 – 3500 years ago and a Late Iron Age (LIA) site dating to 600 – 300 year ago. This was to see if there are any noticeable differences or similarities to the sites. The LSA sites consists of Shark Tooth Midden (STM) and STMb, where the former is the main midden and the latter is the living area. The LIA site is MPE159 where both are individual houses with shell middens. This is shown in Table 4 and figures 57 – 58. Figure 57 shows each artefact/ecofact category as a percentage of the total weight of ertafcts/ecofacts. Figure 58 shows the same, except *P.perna* has been removed from the graph in order to show other categories more clearly.

The comparison yield some interesting results. There are more faunal remains in the LIA site than the LSA site. Moreover, the difference in the faunal remains is that the LIA consist of mostly domesticated remains, while there are no domestic animals in the LSA site. The LSA sites have a higher component of fish remains. This could be due to LSA sites not having domesticated animals as a food source.

The variations in *P. perna* weights is more of a result of different sizes of the sites and the number of people living there. STMB is a small band of hunter-gatherers, while MPE159 is part of a larger nuclear family. The length of occupation will also influence the amount of food eaten.

**TABLE 4: COMPARISON OF ARTEFACTS FROM FIE EXCAVATIONS**

	<b>STM</b>	<b>STMB</b>	<b>MPE187</b>	<b>MPE159</b>	<b>MPE159B</b>
<b>Bone</b>	955.5	188	3.5	791	1281.5
<b>Fish</b>	880.5	2453	2	126	1023
<b>P. perna weight</b>	19110	237008	100268	125036	57925
<b>Other shell</b>	705	0	1501	1351	560
<b>waterworn</b>	2110	0	4255.5	2932	1689
<b>Donax scraper</b>	89	101	4	2	2
<b>manuport</b>	0	0	23.5	0	0
<b>Nassa bead</b>	119	1406	27	73	17
<b>UGS</b>	450	240	192	1676	328
<b>LGS</b>		283		3400	1008
<b>stone tools</b>	7	4622	2	0	0
<b>Worked bone</b>	7	0	0	0	0
<b>worked stone</b>	8	0	2	0	0
<b>worked shell</b>	5	0	1	2	2
<b>Coral</b>	4	471	0	8	0
<b>charcoal</b>	0	0	1000.5	235	284
<b>Pottery</b>	0	0	0	15785	16592
<b>daga</b>	0	0	0	4007	2036
<b>Smoothed stone</b>	0	0	516	185	83
<b>Iron</b>	0	0	0	1414	422

MPE187 is the smallest of all excavations but has a much higher amount of waterworn stone.

Donax scrapers are more common in LSA sites and this is expected since LIA sites would use metal artefacts.

Nassa beads are also more common in LSA sites. LIA tend to have glass and metal bneads.

LIA sites tend to have large lower grinding stones used for sorghum, millet and maize. These foods do not occur in LSA sites. LSA sites have small flat stones that would be used for softening shellfish or corms and tubers. Similarly LSA sites have larger upper grinding stones, whereas LSA sites are smaller.

LSA sites have stone tools exclusively. LSA shell midden sites tend to have a low range of general stone tools. LIA sites would have had metal tools.

Worked stone, shell and bone tend to occur more in LSA sites than LIA sites, although this would not be a means for differentiating the two types of sites.

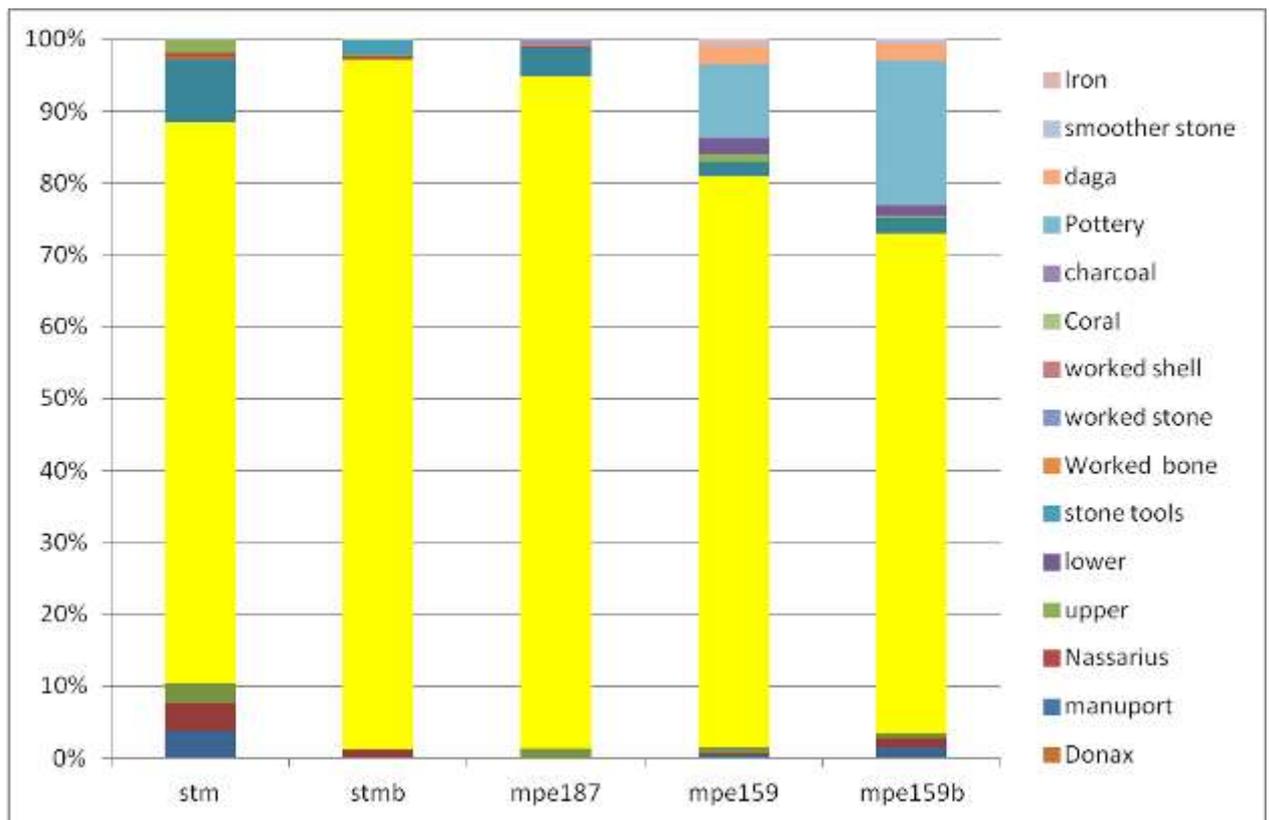
We would expect LIA sites to have more charcoal the LSA sites. Firstly preservation of organic remains would favour the more recent sites. Secondly, LIA would have larger fires for more people over a longer period. LSA sites along the coast are probably seasonal based. It is thus surprising that MPE187 has so much charcoal, even at the beginning of the excavation.

The three main obvious differences between STM and MPE159 is in the occurrence of pottery, daga and iron. LA sites do not have any of these three artefacts. This strongly suggests that MPE187 is a LSA site.

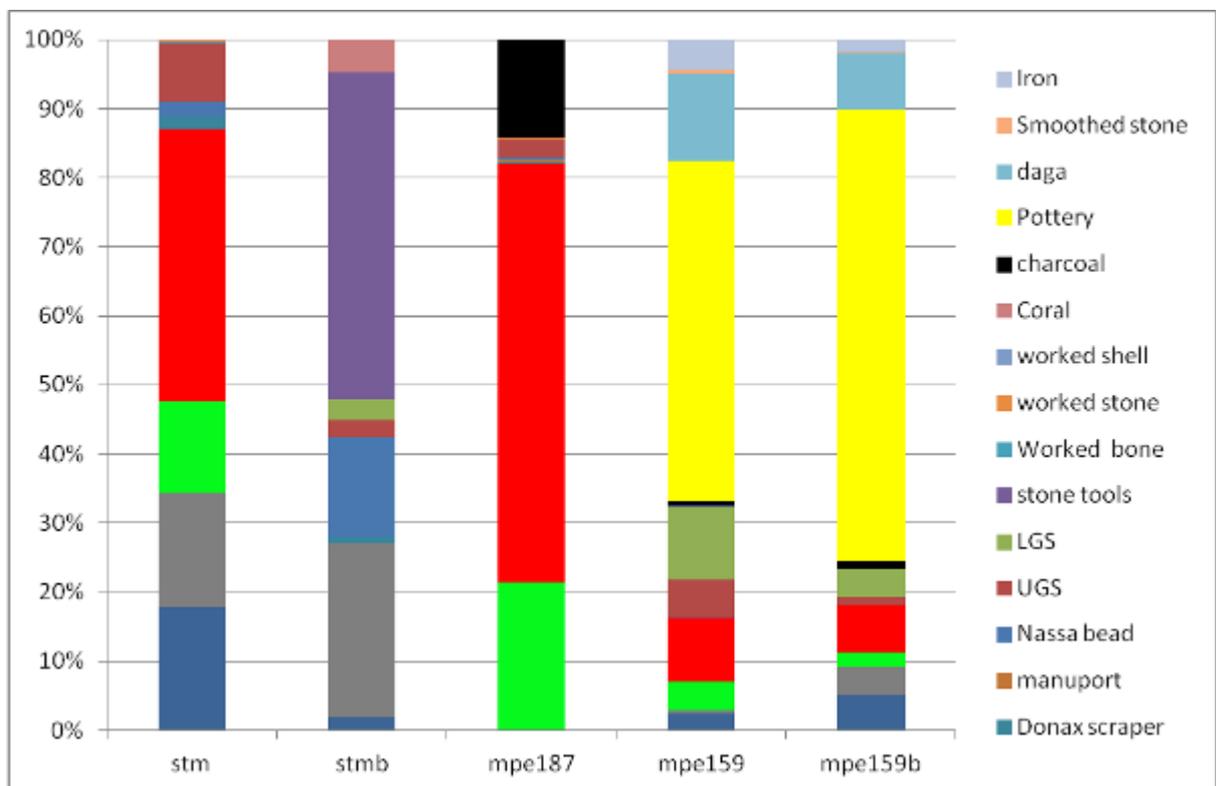
MPE187 is a rare and unique site for several reasons. Firstly, this is the deepest site below the main dune: almost 25m of deposit. Shark Tooth Midden (dated to 2000 – 3000 years ago) was 50cm below the surface, and some of the oldest Iron Age sites (dating to 1700 years ago) were 1m – 1.5m below the surface. This suggests MPE187 can be more than 3000 years in age. This will make it the oldest recorded Late Stone Age site in the dune system.

Secondly, the initial excavations were small in comparison to other sites. However MPE187 appears to have already equaled the amount of charcoal from all of the excavated sites in the mining lease over 25 years (approx. 120 sites). Charcoal is extremely rare in sites older than 1000 years in age.

**FIG. 57: ARTEFACS AS % OF TOTAL WEIGHT**



**FIG. 58: SELECTED ARTEFACS AS % OF TOTAL WEIGHT**



Thirdly, the site appears to continue for 15m in a north-south orientation, and definitely continues into the sand dunes. This means that there could very well be a living area such as at STM and STMb. If that is the case, then it will be the second LSA site along the eastern seaboard that has a shell midden and living area excavated.

Fourthly, MPE187 will be the third LSA, out of nearly 500 sites in the mining lease, to predate to predate 2000 years ago. STM and STMb were excavated while the third site. There is an ESA and MSA site in the mining lease; however these are lag deposits found in the Red Dunes and extend for several kilometers.

We hope further excavations will:

- Recover more stone tools to give an indication of the age of the site.
- Expose the living area
- Expose the length of the midden
- Recover more charcoal, and by default more organic remains.
- If the above are met, we will need to approach RBM for funding at least one radiocarbon date for the project. Radiocarbon dates were never part of the original budget, and the CSIR does not undertake Radiocarbon dates for commercial projects anymore.
- Excavations will need to continue for at least two years (in terms of time frames and budget). This means the location of MPE187 must be submitted to Mine Planning.

## **CONCLUSION**

A total of 9 new archaeological sites were recorded in 2020, and one site was excavated. Many of the sites from 2019 were also monitored during the year and sampled when necessary. The sites dated from the Early Stone Age to the early 20<sup>th</sup> century and form part of an increased sample size of archaeological sites in the mining lease. Early Iron Age sites appear to have decreased in occurrences, while there is an increase in Late Iron Age and Historical Period sites. This is, however, due to the location of the mining operations that are currently concentrating on taller dunes, which were favoured by the latter settlements. There should be an increase in Early Iron Age sites once MPE extends along the lower areas north of Sokhulu Reservoir.

The current heritage mitigation is still uncovering new finds, and increasing data to the general heritage of the area.

Shell middens, and their surrounding areas, are always targeted as these yield better preserved artefacts and human remains. The increase in faunal remains assemblages is important for the eventual reconstruction of the animal species over time in this area. Smaller mammal and bird remains would also be informative, as would be the smaller shell species that are palaeo-environmental indicators. The coral fragments, limpets and even the *P. perna* have potential for scientific research if the isotopes are analysed, e.g. in sea temperature changes over time. The *P. perna* size measurements have use through not only indicating human harvesting patterns through time, but also the impact this may have made on the shellfish populations. This in turn would have relevance for more recent impact studies undertaken brown mussel exploitation KwaZulu-Natal and further afield. Some of the research (e.g. Proudfoot et al, 2006) suggests that there is a significant change in species size over time due to human exploitation. The archaeology tends to suggest that the opposite. It is important that the shell middens along the eastern seaboard are systematically sampled and excavated as these have relevance to contemporary research (see research undertaken by the Oceanographic Research Institute (<http://www.seaworld.org.za/research/>) as one example. The sampling and excavations of these middens is also important in that dune mining removes the entire midden during operations, and thus the material is lost forever.

MPE187 appears to be a significant site and might even be the oldest LSA site in the mining lease. This site will be the target of our excavations for the next two years, although the site will be re-assessed as excavations continue.

## REFERENCES

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Robey, T. 1980. Mpambanyoni: a Late Iron Age site on the Natal south coast. *Annals of the Natal Museum* **24(1)**: 147-164.

**APPENDIX A**  
**SITE RECORD FORMS**

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

SITE CATEGORY:

Stone Age	ESA:		MSA		LSA		I S A
Rock Art	Paintings		Engravings		Other		
Iron Age	EIA:		LIA	x	IIA		
Historical	Historical Period:	x	Recent Past (last 60 yrs):				

Recorder's Site No.: MPD 110

Official Name:

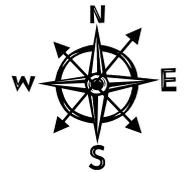
Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 33' 07.3" E: 32 21 37.7" Alt: 85m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

MPD 110 is located on the second dune cordon from the ocean. .



SITE DESCRIPTION:

Type of Site: Open. Midden

Merits conservation: No. It is of low significance and no further mitigation is required. However, we will continue to monitor it during surveys.

Threats: Yes

What threats: RBM Mining

RECORDING:

Digital pictures: Yes Tracings:

Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 19/09/2019

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of a scatter of artefacts across the top of the dune (40m x 20m) and undecorated pottery on the surface. A dispersed *P. Perna* and oyster midden also occur along with a WBS lower grinding stone.

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:**

Stone Age	ESA:		MSA		LSA		ISA	
Rock Art	Paintings		Engravings		Other			
Iron Age	EIA:		LIA	<b>x</b>	IIA			
Historical	Historical Period:	<b>x</b>	Recent Past (last 60 yrs):	<b>x</b>				

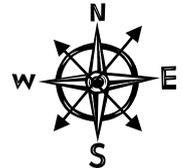
Recorder's Site No.: MPD 111

Official Name:

Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 33'11.3" E: 32 21'46.6" Alt: 120m



**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION**

MPD 111 is located in the middle of the dune cordon system.

**SITE DESCRIPTION:**

Type of Site: Open. Midden

Merits conservation: Yes

Threats: Yes

What threats: RBM Mining

**RECORDING:**

Digital pictures: Yes Tracings: Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 10153, Meerensee, 3901

Date: 29/07/2020

Owner:

References:

**DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.**

The site occurs over a large (50x70m) area and consists of an extensive scatter of artefacts on the surface, as well as at least 3x shell middens.

The artefacts include recent historical and archaeological finds.

Finds include: Various historical glass bottles. Pottery, Perna perna, Oyster, Various metal artefacts, Porcelain and kitchenware, Bovid bone, Upper grinding stones

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

SITE CATEGORY:

Stone Age	ESA:		MSA		LSA		I S A
Rock Art	Paintings		Engravings		Other		
Iron Age	EIA:		LIA		IIA		
Historical	Historical Period:	?	Recent Past (last 60 yrs):	<b>x</b>			

Recorder's Site No.: MPE 181

Official Name:

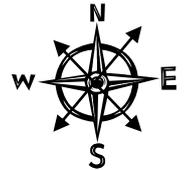
Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31.523" E: 32 22.424 Alt: 23m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

MPE 181 is located on the second dune cordon from the ocean.



SITE DESCRIPTION:

Type of Site: Open. Midden

Merits conservation: No. It is of low significance and no further mitigation is required. However, we will continue to monitor it during surveys.

Threats: Yes

What threats: RBM Mining

RECORDING:

Digital pictures: Yes      Tracings:      Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 26/08/2019

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of a *P.perna* midden and a scatter (20m x 30m) of artefacts including a WBS fragment and undecorated pottery.

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

SITE CATEGORY:

Stone Age	ESA:		MSA		LSA		I	S	A
Rock Art	Paintings		Engravings		Other				
Iron Age	EIA:		LIA		IIA	x			
Historical	Historical Period:		Recent Past (last 60 yrs):						

Recorder's Site No.: MPE 183

Official Name:

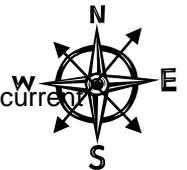
Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31' 02.5" E: 32 22 51.5" Alt: 33m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

MPE 183 is located on the second dune cordon from the ocean, on the back road to the current location of MPE.



SITE DESCRIPTION:

Type of Site: Open.

Merits conservation: No. It is of low significance and no further mitigation is required. However, we will continue to monitor it during surveys.

Threats: Yes

What threats: RBM Mining

RECORDING:

Digital pictures: Yes

Tracings:

Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 31/01/2020

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of *P. perna* fragments, thick and thin walled pottery, bovid bone and teeth and water worn pebbles, 130m along the road.

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

SITE CATEGORY:

Stone Age	ESA:		MSA		LSA		I S A
Rock Art	Paintings		Engravings		Other		
Iron Age	EIA:		LIA	?	IIA		
Historical	Historical Period:	x	Recent Past (last 60 yrs):				

Recorder's Site No.: MPE 184

Official Name:

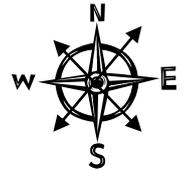
Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31' 34.1" E: 32 22' 47.0" Alt: 126m (Taken from approx. Base of dune)

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

MPE 184 is located on the first dune cordon from the ocean.



SITE DESCRIPTION:

Type of Site: Open. Midden

Merits conservation: No. It is of low/ medium significance and no further mitigation is required.

However, we will continue to monitor it during surveys.

Threats: Yes

What threats: RBM Mining

RECORDING:

Digital pictures: Yes Tracings:

Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 31/01/2020

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

It consists of a scatter (40m x 50m) of artefacts across the top of the dune, including undecorated thin walled pottery, *P.perna* fragments and bovid bone.

The site was also sampled.

## UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

### SITE CATEGORY:

Stone Age	ESA:		MSA		LSA		ISA	
Rock Art	Paintings		Engravings		Other			
Iron Age	EIA:		LIA		IIA			
Historical	Historical Period:	<b>x</b>	Recent Past (last 60 yrs):					

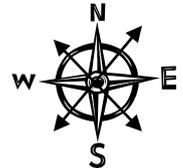
Recorder's Site No.: MPE 185

Official Name:

Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31' 30.1" E: 32 22' 45" Alt: 110m



### DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

MPE 185 is located on the 1<sup>st</sup> red dune cordon from the ocean.

### SITE DESCRIPTION:

Type of Site: Open. Midden

Merits conservation: The site is of low/ medium significance and will be monitored during future surveys. It was also sampled.

Threats: Yes

What threats: RBM Mining

### RECORDING:

Digital pictures: Yes Tracings: Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 10153, Meerensee, 3901

Date: 26/05/2020

Owner:

References:

### DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of a single shell midden next to mine face. The shell is mainly *Perna perna*, upper lower g/stone, bovid bone, possible human tarsal

## UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

### SITE CATEGORY:

Stone Age	ESA:		MSA		LSA		ISA	
Rock Art	Paintings		Engravings		Other			
Iron Age	EIA:		LIA		IIA			
Historical	Historical Period:	x	Recent Past (last 60 yrs):					

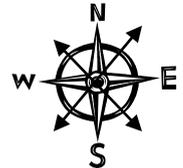
Recorder's Site No.: MPE 186

Official Name:

Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31' 48.4" E: 32 22' 50.9" Alt: 143m



### DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

MPE 186 is located on the 2nd dune cordon from the ocean.

### SITE DESCRIPTION:

Type of Site: Open. Midden

Merits conservation: The site is of low/ medium significance and will be monitored during future surveys. It was also sampled.

Threats: Yes

What threats: RBM Mining

### RECORDING:

Digital pictures: Yes Tracings: Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 10153, Meerensee, 3901

Date: 19/06/2020

Owner:

References:

### DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of a scatter of artefacts over a 20 x 20m area on the top of the dune. The artefacts consist:

- 1x dispersed *P. Perna* midden
- An upper grinding stone
- Thin-walled pottery

**UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**

**SITE CATEGORY:**

Stone Age	ESA:		MSA		LSA	X	ISA	
Rock Art	Paintings		Engravings		Other			
Iron Age	EIA:		LIA		IIA			
Historical	Historical Period:		Recent Past (last 60 yrs):					

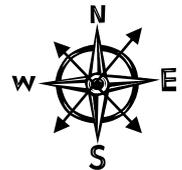
Recorder's Site No.: MPE 187

Official Name:

Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31' 29" E: 32 23' 01" Alt: 75m



**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION**

MPE 186 is located on the 2nd dune cordon from the ocean. IT occurs near the base of the dune under 25m of sand.

**SITE DESCRIPTION:**

Type of Site: Open. Midden

Merits conservation: Yes

Threats: Yes

What threats: RBM Mining

**RECORDING:**

Digital pictures: Yes      Tracings:      Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 10153, Meerensee, 3901

Date: 19/10/2020

Owner:

References:

**DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.**

Site is a LSA midden with very high density of charcoal./ Site will be excavated.

## UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

### SITE CATEGORY:

Stone Age	ESA:		MSA		LSA		ISA	
Rock Art	Paintings		Engravings		Other			
Iron Age	EIA:		LIA	?	IIA			
Historical	Historical Period:	x	Recent Past (last 60 yrs):					

Recorder's Site No.: RD 043

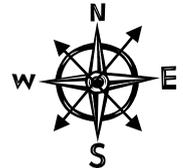
Official Name:

Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31' 53.1" E: 32 21' 55.1"

Alt: 65m



### DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

RD 043 is located on the first of the red dunes, from the ocean side.

### SITE DESCRIPTION:

Type of Site:

Merits conservation: The site is of low/ medium significance and will be monitored during future surveys. It was also sampled.

Threats: Yes

What threats: RBM Mining

### RECORDING:

Digital pictures: Yes

Tracings:

Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 10153, Meerensee, 3901

Date: 27/05/2020

Owner:

References:

### DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of a single shell midden next to mine face. The shell is mainly *Perna perna*, upper lower g/stone, bovid bone, possible human tarsal and undecorated Pottery,

## UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

### SITE CATEGORY:

Stone Age	ESA:		MSA		LSA		ISA	
Rock Art	Paintings		Engravings		Other			
Iron Age	EIA:		LIA	X	IIA			
Historical	Historical Period:		Recent Past (last 60 yrs):					

Recorder's Site No.: RD 044

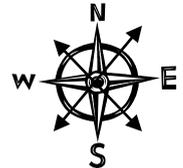
Official Name:

Local Name:

Map Sheet: 2832CA St Lucia

GPS reading: S: 28 31' 59.1" E: 32 21' 52.5"

Alt: 63m



### DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

RD 044 is located on the first of the red dunes, from the ocean side.

### SITE DESCRIPTION:

Type of Site:

Merits conservation: The site is of low/ medium significance and will be monitored during future surveys. It was also sampled.

Threats: Yes

What threats: RBM Mining

### RECORDING:

Digital pictures: Yes

Tracings:

Drawings:

Recorder/Informant: Name: Gavin and Louise Anderson

Address: PO Box 10153, Meerensee, 3901

Date: 27/05/2020

Owner:

References:

### DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of a single shell midden next to mine face. The shell is mainly *Perna perna*, upper lower g/stone, bovid bone, and decorated pottery (horizontal incisions on lip). Human cranium fragments and a molar occur halfway down the dune, and other parts are located further downhill. The entire skeleton is probably dispersed.