

**UMDLOTI BEACH FAR SOUTH SEWAGE  
INFRASTRUCTURE PROJECT, ETHEKWINI  
MUNICIPALITY, KWAZULU-NATAL**

**Phase 1 Heritage Impact Assessment**

**16 April 2018  
Updated 16 August 2018**

**Client:** Adila Gafoor  
1World Consultants

**Author:** Jean Beater  
JLB Consulting

## EXECUTIVE SUMMARY

eThekwini Water and Sanitation (EWS) proposes the construction of 1.64km of 160mmØ HDuPVC internal gravity sewer reticulation, 600m long of 100mmØ rising main, a pump station of 25m<sup>2</sup> in area and a 140m long 5m wide access road, in Ward 58 in Umdloti Beach. This report serves as the Phase 1 Heritage Impact Assessment (HIA) for the proposed sewage infrastructure project.

The proposed sewage infrastructure project triggers Section 38 (1) (a) of the National Heritage Resources Act (NHRA), 1999 (Act No 25 of 1999). The relevant section of the NHRA refers to the following developments:

*"38 (1) (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.*

The length of the proposed sewer reticulation (1.64km) and rising main (600m) exceed 300m in length therefore triggering the section of the NHRA.

Umdloti Beach is situated approximately 25km north of the centre of Durban and approximately 7km north of Umhlanga Rocks. The project area is located on the southern tip of Umdloti.

A site inspection of the project area was undertaken on 09 April 2018. Visibility along the streets where the reticulation is to be laid was good; the area where the pump station and access road are to be located is covered with dense coastal vegetation which limited access almost completely and severely hampered visibility. The inspection of the pump station was limited to pathways in the approximate area of the pump station.

Along Newsel Road close to the intersection with Sixth Avenue a large coastal red milkwood is found that stands in the middle of the road. Local residents refer to it being very old and it is recommended that the laying of the pipelines does not impact on the tree. The house at No. 45 South Beach Road is over 60 years of age therefore it is protected by the NHRA. However, it is the understanding of the specialist, that no residential structures will be impacted by the proposed sewage reticulation project.

The site of the proposed rising main which is situated along the eastern boundary of South Beach Road is located in an area overgrown by dune vegetation. No heritage sites were noted during the site inspection.

The site of the proposed pump station and access road is overgrown with very dense vegetation making both areas virtually impossible to access. The specialist found a footpath to the top of the dune in the vicinity of the proposed pump station site and inspected this area. No heritage resources were observed during the inspection of the area. Close to and north of the path to the top of the dune described above, a shell midden was observed on a rock shelf immediately above the beach. Shell middens are indicators of previous use of resources by early inhabitants of the area and could indicate the presence of archaeological and other heritage resources that may be impacted by the proposed project.

The proposed access road area could not be inspected due to the very thick vegetation cover across the length of road.

The South African Fossil Sensitivity Map indicates that the project area is situated in an area of high to very high fossil sensitivity. Due to the highly disturbed nature along the streets where the pipeline reticulation will be placed, it is recommended that no further study of these areas be undertaken.

However, it is recommended that a desktop palaeontological study is undertaken of the area where the pump station and the access road are to be located in order to determine whether sensitive fossil finds will be impacted by the proposed development. Depending on the outcome of the desktop study, a field assessment may be required.

A desktop palaeontological study was undertaken as per the above recommendation. The study found that the geological units that were most relevant to the project were the overlying Maputaland Group that represent coastal deposits. At the base are the coquina and conglomerates of the Uloa Formation, then the Umkwelane Formation aeolianites with “Berea-type” rubrified sand. Above that are possible dune sands and the fossiliferous Port Durnford Formation’s muds, peats and sands. The basal layer of the Maputaland Group, the Uloa Formation, is composed of calcified coquina and shelly conglomerates representing the littoral zone of the palaeo shoreline. The Port Durnford Formation is also potentially fossiliferous with mammal bones, and peats preserving a rich palynological record.

Since there is a moderate chance of finding fossils of shells, fish, mammal bones, wood or pollen it is recommended that either a professional palaeontologist/geologist or a well-informed environmental control officer be present when excavations commence. The responsible person should photograph and record the position of any fossils before collecting them (with an AMAFA permit). The fossils should be deposited in a recognized local museum. Given that the pump

station, access road pipeline footprint will be very narrow and are likely to cross cut the potentially fossiliferous strata rescue is recommended rather than preservation *in situ*.

**The following was recommended:**

- No dwellings or structures should be impacted by the proposed sewage reticulation. If structures are to be impacted, then an application for permission to alter any structure older than 60 years must be made to Amafa in terms of section 33 (1) (a) of the KZN Heritage Act.
- Due to difficulties accessing aspects of the project, it is recommended that when the vegetation is removed in preparation of construction of the rising main, pump station and access road, the ECO inspects the cleared areas for ash deposits (unnaturally grey appearance of the soil in comparison to the surrounding soil); bone concentrations (either animal or human), shell middens, ceramic fragments such as pottery shards and beads. If such sites are found then a heritage specialist must assess the significance of the find/s.
- No work may proceed until the desktop palaeontological assessment has been undertaken on the location of the proposed pump station and access road and the recommendations of this study are implemented (see recommendations provided above and in the main body of this report).
- Mitigation measures provided in this report must be adhered to and implemented where necessary.

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY</b>	ii
<b>TABLE OF CONTENTS</b>	v
<b>1. INTRODUCTION</b>	7
<b>2. LEGISLATIVE BACKGROUND</b>	7
<b>3. LOCATION</b>	8
<b>4. TERMS OF REFERENCE</b>	8
<b>5. METHODOLOGY</b>	11
<b>6. HISTORICAL BACKGROUND OF THE STUDY AREA</b>	11
<b>7. RESULTS OF SITE INSPECTION</b>	12
<b>8. RECOMMENDATIONS AND CONCLUSION</b>	20
<b>9. MITIGATION MEASURES</b>	21
<b>10. REFERENCES</b>	22

## FIGURES

Figure 1: Project area outlined in yellow with pump station indicated with orange square and access road by red line .....	9
Figure 2: Google Earth image showing project area within larger surrounds .....	10
Figure 3: Milkwood in Newsel Road.....	12
Figure 4: View of Fifth Avenue towards South Beach Road.....	13
Figure 5: View of Newsel Road looking northwards .....	13
Figure 6: View along South Beach Road looking southwards .....	14
Figure 7: Dwelling at 45 South Beach Road .....	14
Figure 8: Area of proposed rising main .....	15
Figure 9: Area on top of dune in vicinity of pump station .....	16
Figure 10: Dense vegetation on top of dune in vicinity of pump station.....	16
Figure 11: Dense bush on top of dune .....	17
Figure 12: Shell midden above beach .....	17
Figure 13: Start of proposed access road.....	18
Figure 14: Fossil sensitivity map with project area indicated by red circle.....	19

---

## AUTHOR DETAILS

Name	Qualification	Professional Registration
Jean Beater	MA (Heritage Studies) MSc (Environmental Management)	Member of the Association of South African Professional Archaeologists (No. 349) Member of IAIAsa (No. 1538)

## 1. INTRODUCTION

eThekwini Water and Sanitation (EWS) proposes the construction of 1.64km of 160mmØ HDuPVC internal gravity sewer reticulation, 600m long of 100mmØ rising main, a pump station of 25m<sup>2</sup> in area and a 140m long 5m wide access road, in Ward 58 in Umdloti Beach.

This report serves as the Phase 1 Heritage Impact Assessment (HIA) for the proposed sewage infrastructure project.

## 2. LEGISLATIVE BACKGROUND

The proposed sewage infrastructure project triggers Section 38 (1) (a) of the National Heritage Resources Act (NHRA), 1999 (Act No 25 of 1999). The relevant section of the NHRA refers to the following developments:

*“38 (1) (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.*

The length of the proposed sewer reticulation (1.64km) and rising main (600m) exceed 300m in length therefore triggering the above-mentioned section.

The project may also impact on graves, structures, archaeological and palaeontological resources that are protected in terms of sections 33, 34, 35, and 36 of the KwaZulu-Natal Heritage Act (No. 4 of 2008) as well as sections 34, 35, and 36 of the NHRA.

In terms of Section 3 of the NHRA, heritage resources are described as follows:

- (a) places, buildings, structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and paleontological sites;
- (g) graves and burial grounds, including—
  - (i) ancestral graves;
  - (ii) royal graves and graves of traditional leaders;
  - (iii) graves of victims of conflict;
  - (iv) graves of individuals designated by the Minister by notice in the *Gazette*;

- (v) historical graves and cemeteries; and
  - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including:
- (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
  - (ii) objects to which oral traditions are attached or which are associated with living heritage;
  - (iii) ethnographic art and objects;
  - (iv) military objects;
  - (v) objects of decorative or fine art;
  - (vi) objects of scientific or technological interest; and
  - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

The Phase I HIA was undertaken to assess whether any heritage resources will be impacted by the proposed Umdloti Beach Far South sewage infrastructure project.

### **3. LOCATION**

Umdloti Beach is situated approximately 25km north of the centre of Durban and approximately 7km north of Umhlanga Rocks. The project area is located on the southern tip of Umdloti (see **Figures 1 and 2**).

### **4. TERMS OF REFERENCE**

Undertake a Phase 1 Heritage Impact Assessment (HIA) in order to determine the possible existence of heritage resources (archaeological, palaeontological and cultural-historical sites or features, etc.) in the project area that could be impacted by the proposed sewage development.

Provide mitigation measures to limit or avoid the impact of the construction of the project on heritage resources (if any).

Submit this HIA report to the heritage authority of KwaZulu-Natal, namely Amafa aKwaZulu-Natali (Amafa) for their consideration and comment.



**Figure 1: Project area outlined in yellow with pump station indicated with orange square and access road by red line**



**Figure 2: Google Earth image showing project area within larger surrounds**

## 5. METHODOLOGY

A survey of literature was undertaken of the larger Umdloti area in order to place the project in a historical context.

A site inspection of the project area was undertaken on 09 April 2018. Visibility along the streets where the reticulation is to be laid was good; the area where the pump station and access road are to be located is covered with dense coastal vegetation which limited access almost completely to these sites and severely hampered visibility. The inspection of the pump station was limited to pathways in the approximate area of the pump station.

## 6. HISTORICAL BACKGROUND OF THE STUDY AREA

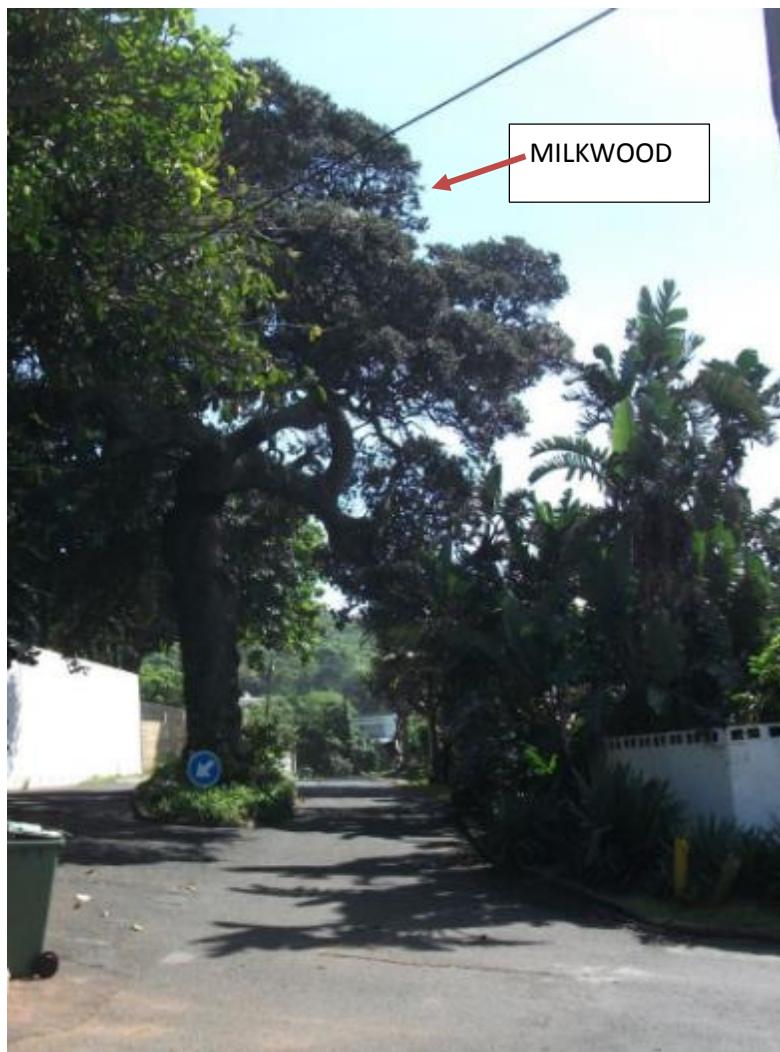
The first recorded access to Umdloti was along a dirt road along the Umdloti Estuary through the mangroves. This provided limited access to the north beach area but left the rest virtually pristine. The origin of the word Umdloti is believed to be a Zulu name for the dried leaves of the 'exotic' tobacco plant mixed with dried leaves of the indigenous Aloe Thraski. During the period of 1849-1853, some 30,000 acres of land was put under cotton cultivation covering the whole Umdloti valley by the Natal Cotton Company. This venture failed mainly for financial reasons following increased production in the United States of America after the American Civil War ended. Between 1888 and 1892 the businessman and mayor of Durban, William Arbuckle, purchased land in Umdloti creating a holding of 1,301 acres. He installed a manager on the farm, known as Bellamont Estate, and signed on indentured labour to establish several hundred acres under sugarcane. In 1895, Arbuckle sub-divided the northern three quarters of the land on the Umdloti beachfront into 16 five acre plots and a larger plot of 65 acres and sold them to various people (Siedle, 2018:2-10).

According to Siedle (2018:12-16), development of Umdloti was slow due to the fact that early residents were entirely dependent on rainwater stored from roof run-off into storage tanks. Later provision was made to capture spring water from the stream which runs down the small valley into Umdloti near the traffic circle. There was also no public sewage-disposal scheme so conditions were primitive although electricity was later supplied by the Durban Corporation. The construction of holiday cottages seems to have started after 1919 and progressed slowly; the valuation role of 1948-49 indicates there were 50 dwellings, two hotels and one shop. The Umdloti-Newsel Township was founded in 1932. Following the formal layout of Umdloti Village,

the area was under the control of the Newsel-Umdloti Health Committee until the 1960's after which it became a Town Board. Umdloti was incorporated in 1993 into the Borough of Umhlanga and now falls under the eThekini Municipality.

## 7. RESULTS OF SITE INSPECTION

The streets along which the reticulation for the sewage project will be laid were inspected (Fourth, Fifth and Sixth Avenues, South Beach and Newsel Roads). Along Newsel Road close to the intersection with Sixth Avenue a large coastal red milkwood is found that stands in the middle of the road. Local residents refer to it being very old and it is recommended that the laying of the pipelines does not impact on the tree.



**Figure 3: Milkwood in Newsel Road**



**Figure 4: View of Fifth Avenue towards South Beach Road**



**Figure 5: View of Newsel Road looking northwards**



**Figure 6: View along South Beach Road looking southwards**

The house at No. 45 South Beach Road is over 60 years of age therefore it is protected by the NHRA. It could be one of the original holiday houses referred to in Chapter 6 or from that era. However, it is the understanding of the specialist, that no residential structures will be impacted by the proposed sewage reticulation project.



**Figure 7: Dwelling at 45 South Beach Road**

The site of the proposed rising main which is situated along the eastern boundary of South Beach Road is located in an area overgrown by dune vegetation. No heritage sites were noted during the site inspection.



**Figure 8: Area of proposed rising main**

The site of the proposed pump station and access road is overgrown with very dense vegetation making both areas virtually impossible to access. The specialist found a footpath to the top of the dune in the vicinity of the proposed pump station site and inspected this area. No heritage resources were observed during the inspection. The area on top of the dune in the vicinity of the pump station is depicted in **Figures 9, 10 and 11**.

Close to and north of the path to the top of the dune described above, a shell midden was observed on a rock shelf immediately above the beach. Shell middens are indicators of previous use of resources by early inhabitants of the area and can indicate the presence of archaeological and other remains that could be impacted by the proposed project.



**Figure 9: Area on top of dune in vicinity of pump station**



**Figure 10: Dense vegetation on top of dune in vicinity of pump station**



**Figure 11: Dense bush on top of dune**



**Figure 12: Shell midden above beach**

The proposed access road area could not be inspected due to the very thick vegetation cover across the length of road (see **Figure 13** below).



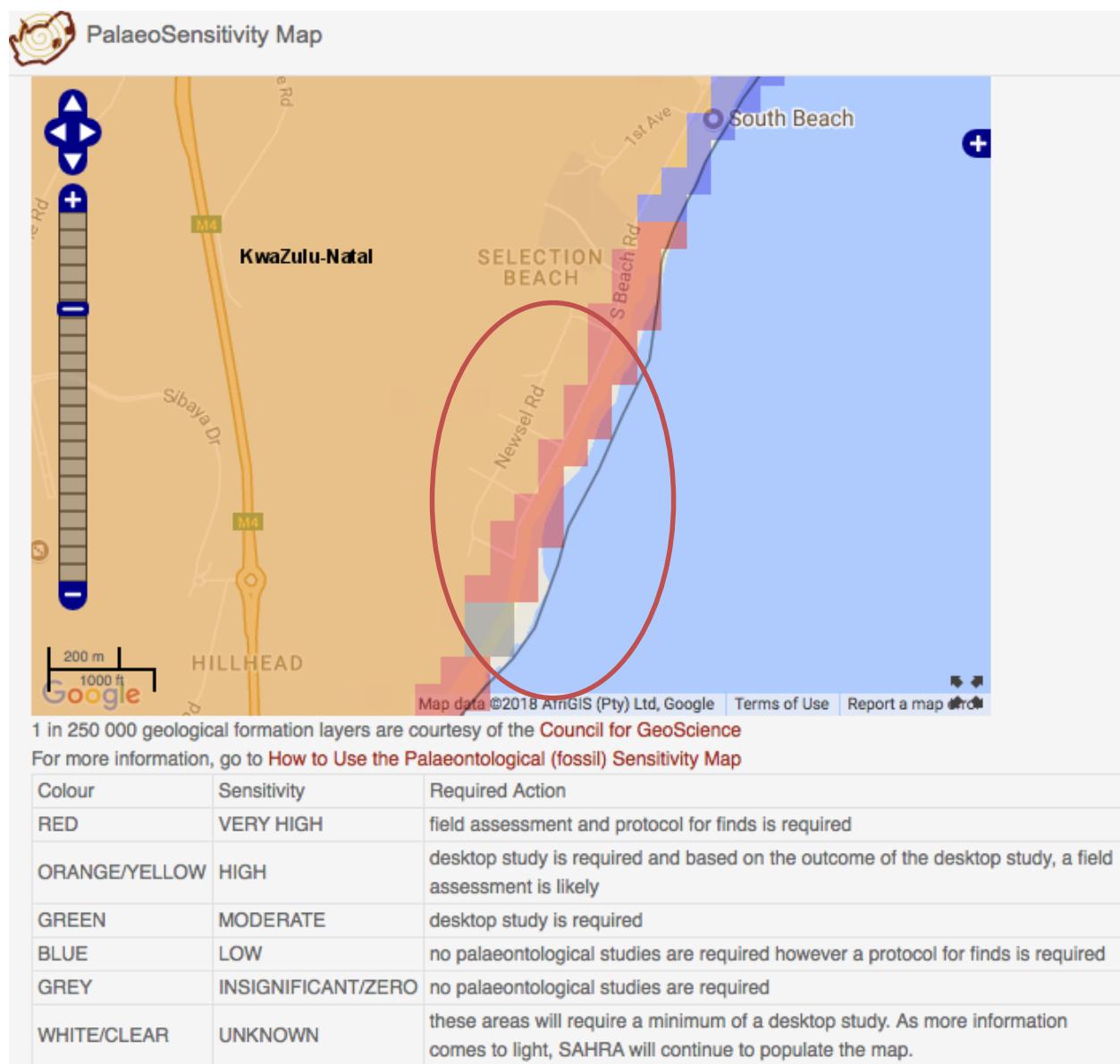
**Figure 13: Start of proposed access road**

The South African Fossil Sensitivity Map indicates that the project area is situated in an area of high to very high fossil sensitivity as indicated by the red and orange colours on **Figure 14** below. Due to the highly disturbed nature along the streets where the pipeline reticulation will be placed, it is recommended that no further study of these areas of the project be undertaken as any fossils that may have been present will have been destroyed during the development of the roads and residences.

However, it is recommended that a desktop palaeontological study is undertaken of the area where the pump station and the access road are to be located in order to determine whether sensitive fossil finds will be impacted by the proposed development. Both the pump station and access road are situated in undeveloped areas hence the need for the desktop study. Depending on the outcome of the desktop study, a field assessment may be required.

A desktop palaeontological study was undertaken as per the above recommendation. The study found that the geological units that are most relevant to the project are the overlying Maputaland Group that represent coastal deposits. At the base are the coquina and conglomerates of the Uloa Formation, then the Umkwelane Formation aeolianites with “Berea-type” rubrified sand. Above that are possible dune sands and the fossiliferous Port Durnford Formation’s muds, peats and sands. The basal layer of the Maputaland Group, the Uloa Formation, is composed of calcified coquina and shelly conglomerates representing the littoral zone of the palaeo shoreline. The Port Durnford Formation is also potentially fossiliferous with mammal bones, and peats

preserving a rich palynological record having been recorded from several sites along the coast between Durban and Lake St Lucia.



**Figure 14: Fossil sensitivity map with project area indicated by red circle**

Based on the geology of the area and the palaeontological, the study found that it can be assumed that the formation and layout of the calcified coquina, conglomerates, aeolianites, sand dunes and sands are typical for the country, there is a moderate chance of finding fossils of shells, fish, mammal bones, wood or pollen because such fossils have been recorded from other exposures along the coast north of Durban. The proposed project is likely to penetrate some or part of these fossiliferous deposits.

The study therefore recommended that either a professional palaeontologist/geologist or a well-informed environmental control officer be present when excavations commence. The responsible

person should photograph and record the position of any fossils (if any) before collecting them (with an Amafa permit). The fossils should be deposited in a recognized local museum. Given that the pump station, access road and pipeline footprint will be very narrow and likely to cross cut the potentially fossiliferous strata, rescue is recommended rather than *in situ* preservation. Moreover, the environment is physically unstable and people live close by so it would be difficult to preserve and protect any exposed fossils.

## **8. RECOMMENDATIONS AND CONCLUSION**

The red milkwood tree situated close to the corner of Sixth Avenue and Newsel Road must not be disturbed by the proposed sewage reticulation.

No dwellings or structures should be impacted by the proposed sewage reticulation. If structures are to be impacted, then an application for permission to alter any structure older than 60 years will have to be made to Amafa in terms of section 33 (1) (a) of the KZN Heritage Act.

Due to difficulties accessing specific aspects of the proposed project, it is recommended that when the vegetation is removed in preparation of constructing the rising main, pump station and access road, the ECO inspects the cleared areas for ash deposits (unnaturally grey appearance of the soil in comparison to the surrounding soil); bone concentrations, (either animal or human), shell middens, ceramic fragments such as pottery shards and beads. If such finds are discovered, then work in the immediate area must stop and the services of a heritage specialist must be obtained in order to verify the significance of the find.

Either a professional palaeontologist/geologist or a well-informed environmental control officer be present when excavations commence. The responsible person should photograph and record the position of any fossils before collecting them (with an AMAFA permit). The fossils should be deposited in a recognized local museum. Rescue of any fossils is recommended instead of *in situ* preservation.

Mitigation measures provided below must be adhered to and implemented where necessary.

## 9. MITIGATION MEASURES

- The construction team should be made aware that heritage resources, such as archaeological remains, usually occur below the ground surface level. Should any archaeological material and other heritage resources be accidentally unearthed during the course of construction, all such activities are to be halted immediately, and the Contractor will immediately inform the Project Manager. A registered heritage specialist must be called to site for inspection. Amafa must also be informed about the findings.
- The heritage specialist will assess the significance of the resource and provide guidance on the way forward.
- Written permission must be obtained from Amafa if heritage resources are to be removed, destroyed or altered.
- All heritage resources found in close proximity to the construction area to be protected by a 5m buffer in which no construction can take place. The buffer material (danger tape, fencing, etc.) must be highly visible to construction crews.
- Under no circumstances may any heritage material be destroyed or removed from site unless under direction of a heritage specialist.
- Either a professional palaeontologist/geologist or a well-informed environmental control officer be present when excavations commence. The responsible person should photograph and record the position of any fossils before collecting them (with an AMAFA permit). The fossils should be deposited in a recognized local museum.

## 10. REFERENCES

1World Consultants. 2018. *Background Information Document: Proposed Umdloti Beach Far South sewage infrastructure project.*

Bamford, M. 2018. *Palaeontological Impact Assessment for the proposed Umdloti Beach Far South Sewage Infrastructure Project in Umdloti Beach, Ward 58, eThekweni Municipality, KwaZulu Natal.* Unpublished report

Siedle, R. 2018. *Umdloti – long, long ago. Origin, immigration, development.* (<https://www.emdlotiuip.co.za/history>)