

**PROPOSED CALEDON SEWER PIPELINE PROJECT,
COMPENSATION, KWADUKUZA MUNICIPALITY,
KWAZULU-NATAL**

Phase 1 Heritage Impact Assessment

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FOR: ENVIROPRO

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EXECUTIVE SUMMARY

Siza Water proposes the construction of the new trunk sewer main from Caledon Estate pump station to Compensation pump station. The project will comprise a new DN200 HDPE pumped main approximately 350m long from the existing Caledon Estate pump station to a new stilling chamber and a new DN160 PVC gravity main approximately 1850m long from the new stilling chamber to the existing Compensation pump station. The existing Caledon Estate pump station (pumps, pipework, electrical power supply, and control instruments) will also be upgraded.

The length of the proposed sewer pipeline is 2200m hence it triggers section 41 (1)(a) of the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018) which lists developments or activities that may require an HIA. Section 41 (1)(a) refers to the construction of a pipeline exceeding 300m in length.

The project area is located west of the N2 highway and a large section runs along / parallel to the north-western boundary of the uMhlali Country Club in Ballito. The pipeline is located between the Caledon Residential Estate and the existing Compensation pump station further south.

A site inspection of the pipeline and pump stations took place on 16 November 2021. The pipeline route and surrounding area were inspected on foot. Visibility was, on the most part, good.

The inspection started at the Caledon Estate pump station. The proposed sewer pipeline will exit the pump station from its western side and then turn southwards once outside the Estate. This section of pipeline is located between the Estate boundary fence and a railway line hence the area is disturbed and overgrown with vegetation. The route then runs alongside and immediately east of the railway line and is located between the railway line and some buildings. No heritage sites were found along these sections of the pipeline route.

The proposed pipeline route then runs along the boundary of the uMhlali Country Club between the Country Club and the railway line before turning sharply to the west to cross the railway line. The area between the Country Club and railway line is disturbed by an existing road and previous building activity. The area is also overgrown with vegetation and there is existing sewer infrastructure in the area with several manholes and a visible pipeline. The pipeline is located just over 20m east of the Compensation Railway Station. The railway station and associated buildings appear in the 1942 topographic map and are therefore over 60 years and protected by heritage legislation. The railway station is no longer in use and the buildings are abandoned. South of the railway station, a water tank on a platform was discovered. It does not appear to be used any longer and its age could not be determined.

The proposed pipeline route west of the railway line goes through sugar cane fields and alongside a small watercourse before it reaches the Compensation pump station. Manholes are evidence of existing infrastructure along the pipeline route. The sugar cane had recently been cut hence visibility was good. No heritage sites were found during the site inspection.

The fossil sensitivity map of the South Africa indicates that the proposed sewer pipeline falls into a zone of high fossil sensitivity which requires that a desktop palaeontological study is undertaken. The desktop palaeontological study found that the proposed pipeline route lies on the aeolianite and red and white sands and basal conglomerate of the Umkwelane Formation, Maputaland Group. The surface has loose sands and dense vegetation so the surface will not preserve any fossils. There is a small chance that marine molluscs and shark teeth from the Umkwelane Formation (Maputaland Group) of middle Miocene to Pliocene Age might be disturbed from below ground sediments. Therefore, a Fossil Chance Find Protocol should be added to the EMP. As far as the palaeontology is concerned, the project should be authorised.

During the site inspection, structures were found that are protected by section 37 (1)(a) of the KwaZulu-Natal Amafa and Research Institute Act, 2018, which refers to the protection of structures that are or that may reasonably be expected to be older than 60 years. The Compensation railway station and associated buildings are protected by this section; however, the buildings are abandoned and not in a good condition hence the low heritage significance ascribed to them. The installation of the pipeline should not impact the structures and they should be left *in-situ*. However, if the structures are to be impacted, then application must be made to the Institute in terms of the process described in section 3 of the draft KwaZulu-Natal & Research Institute Regulations, 2021 or section 2 of the KwaZulu-Natal Heritage Regulations 2012 if the 2021 regulations have not been officially promulgated by the time an application is made. This section refers to an application to the Institute for the demolition, alteration or addition to a structure which is, or which may reasonably be expected to be older than 60 years.

The age of the elevated water tower could not be determined. It is situated very close to the proposed pipeline and could therefore be impacted. A built heritage specialist will need to be consulted if this structure is to be demolished, altered or damaged by the installation of the pipeline. It is recommended that the structure be left *in-situ* and be cordoned off with danger tape to avoid damage by the installation of the pipeline. However, if the structure is to be impacted in any way and it is determined that the structure is older than 60 years, then application must be made to the Institute as described above.

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I, Jean Beater, act as an independent specialist for this project and I do not have any vested interest either business, financial, personal or other, in the proposed activity other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014.

SPECIALIST DETAILS

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

1. INTRODUCTION

Siza Water proposes the construction of the new trunk sewer main from Caledon Estate pump station to Compensation pump station. The project will comprise a new DN200 HDPE pumped main approximately 350m long from the existing Caledon Estate pump station to a new stilling chamber and a new DN160 PVC gravity main approximately 1850m long from the new stilling chamber to the existing Compensation pump station. The existing Caledon Estate pump station (pumps, pipework, electrical power supply, and control instruments) will also be upgraded (Enviropro 2021:1).

The requirement for the additional pipeline is to reduce pressure or load on the existing sewer infrastructure which is currently operating at full capacity.

The Phase I Heritage Impact Assessment (HIA) was undertaken to assess whether the proposed pipeline and associated work will impact heritage resources.

2. LEGISLATIVE BACKGROUND

The length of the proposed sewer pipeline is 2200m hence it triggers section 41 (1)(a) of the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018) which lists developments or activities that may require an HIA. Section 41 (1)(a) refers to: “the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length”.

The construction and operation of the pipeline may also impact graves, structures, archaeological and palaeontological resources that are protected in terms of sections 37, 38, 39, and 40 of the KwaZulu-Natal Amafa and Research Institute Act, 2018.

In terms of section 3 of the NHRA, heritage resources are:

- (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) 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).

3. LOCATION

The project area is located west of the N2 highway and a large section runs along / parallel to the north-western boundary of the uMhlali Country Club in Ballito (**Figure 1**) The pipeline is located between the Caledon Residential Estate in the north and the existing Compensation pump station further south.

4. TERMS OF REFERENCE

Undertake a Phase 1 Heritage Impact Assessment in order to determine the possible existence of heritage resources that could be impacted by the project. Provide mitigation measures to limit or avoid the impact of the proposed project on heritage resources (if any).

Submit the HIA report to the provincial heritage resources authority, the KwaZulu-Natal Amafa and Research Institute (hereafter referred to as the Institute), for their assessment and comment.



Figure 1: Project location with pipeline route indicated in orange

5. METHODOLOGY AND CONSTRAINTS

A survey of literature, including other heritage impact assessment reports completed for the surrounding area, was undertaken in order to ascertain the history of the area and what type of heritage resources have or may be found in the area of development.

A site inspection of the pipeline and pump stations took place on 16 November 2021. The pipeline route and surrounding area were inspected on foot. Visibility was, on the most part good; however, sections of the pipeline route located alongside the uMhlali Country Club was overgrown with dense vegetation.

6. HISTORICAL BACKGROUND OF PROJECT & SURROUNDING AREA

The larger region has probably been inhabited by humans since Early Stone Age (ESA) times. Reports indicate that tools dating to this period are mostly found as surface scatters in the vicinity of watercourses. During Middle Stone Age (MSA) times (c. 150 000 – 30 000 BP), people became more mobile, occupying areas formerly avoided. These people were adept at exploiting the huge herds of animals that passed through the area, on their seasonal migration. As a result, tools belonging to this period also mostly occur in the open or in erosion dongas. Similar to the ESA material, artefacts from these surface collections are viewed not to be in a primary context and have little or no significance. Later Stone Age (LSA) people had even more advanced tools and therefore succeeded in occupying even more diverse habitats. LSA people preferred to occupy rock shelters and caves such as in the foothills of the Drakensberg and above the escarpment (van Schalkwyk 2016:9-10).

The earliest agricultural sites in KwaZulu-Natal date to between AD 400 and 550. All are situated close to sources of iron ore, and within 15 km of the coast. Current evidence suggests it may have been too dry further inland at this time for successful cultivation. From 650 onwards, however, climatic conditions improved and agriculturists expanded into the valleys of KwaZulu-Natal, where they settled close to rivers in savanna or bushveld environments (eThembeni 2013:19-20). Most Early Iron Age villages in KwaZulu-Natal were often about eight hectares in size and probably containing a hundred or more people, and were found in the lower-lying and savannah areas, below an altitude of 1 000 metres. They were most common along the major rivers and in the coastal belt, where there was good, deep soil, year-round grazing, and timber for building and fuel. The beginning of the Late Iron Age saw settlements no longer located in river valleys, but

were built on higher ground where homesteads would benefit from breezes and good views for strategic purposes. Settlements appear to have been smaller, implying that society underwent a change away from the large EIA villages and towards the individual family homesteads of the historic Nguni-speaking peoples (eThembeni 2008:13-14).

The site of first sugar mill in South Africa is marked by an octagonal gazebo and has been declared a provincial heritage site. It is situated not far from the project area. The founder of the sugar industry in Natal was Edmund Morewood, one of the early settlers in Durban. When the Voortrekkers arrived, he gained their confidence and supported them in their negotiations with Mpande. In recognition of his services, the Natalia Republic appointed him as harbour-master and superintendent of customs at Durban. After the British occupation of Natal, he continued to hold this post for several years but then decided to take up farming. He was granted a farm between the Tongaat and Umhlali Rivers by the British Government which he called 'Compensation'. Morewood became interested in a kind of wild sugar cane that grew near the coast, called umoba or imphi by the Zulus. He came to the conclusion that where these reeds grew so luxuriantly, sugar cane would also do well. In 1847 a Durban firm was asked to import a consignment of sugar for experimental purposes from the island of Bourbon (Reunion). Morewood took over a part of this consignment and planted it on his farm Compensation. The sugar cane did extremely well and by 1852 he had 42 hectares under three different kinds of cane. In 1851 he built his own sugar mill, the first in South Africa, to crush the cane (SAHRIS 2012:1).

The relevant section of the 1942 topographic map (2931CA) of the project area shows the railway line, Compensation railway station and buildings, cultivated fields, trees, marshes, swamps and vleis as well as a few homesteads.

In the 1969 topographical map, the homesteads mentioned above have disappeared and have been replaced with cultivated land. A golf course, the uMhlali Country Club which was established in 1961, is visible as well as the N2 highway.

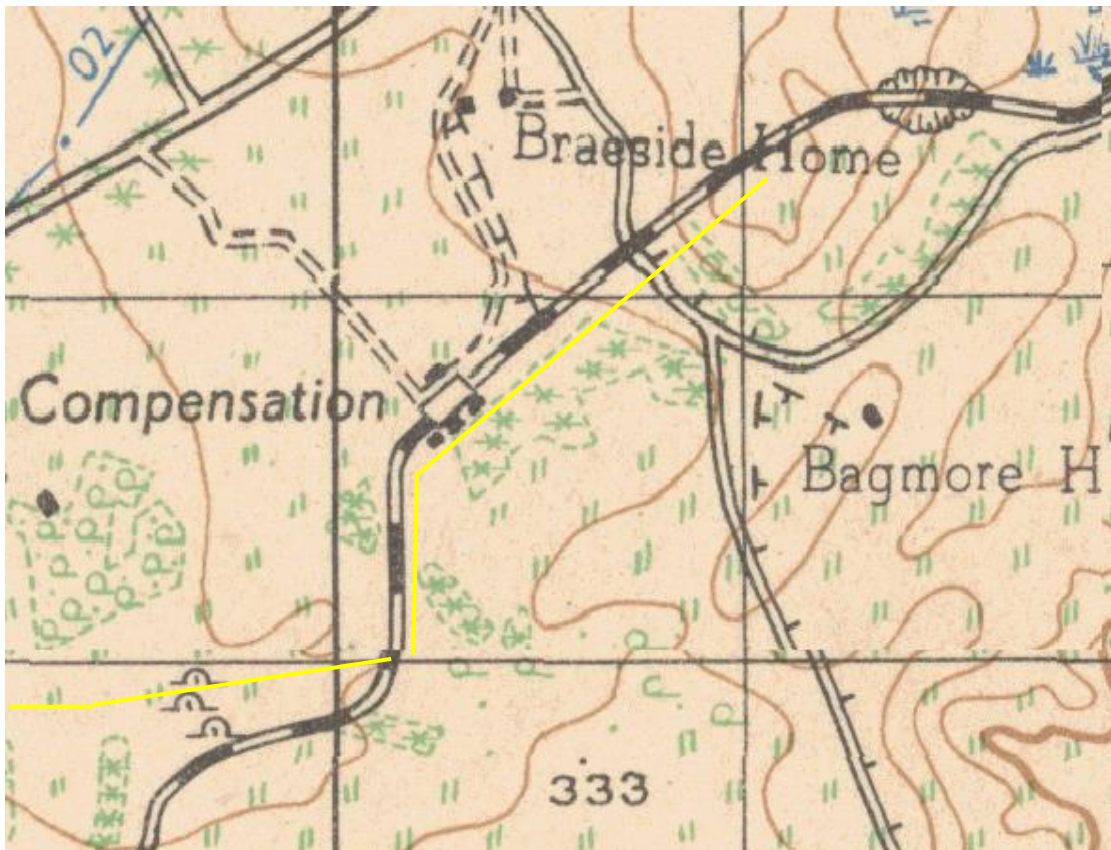


Figure 2: 1942 topographic map with pipeline route indicated in yellow

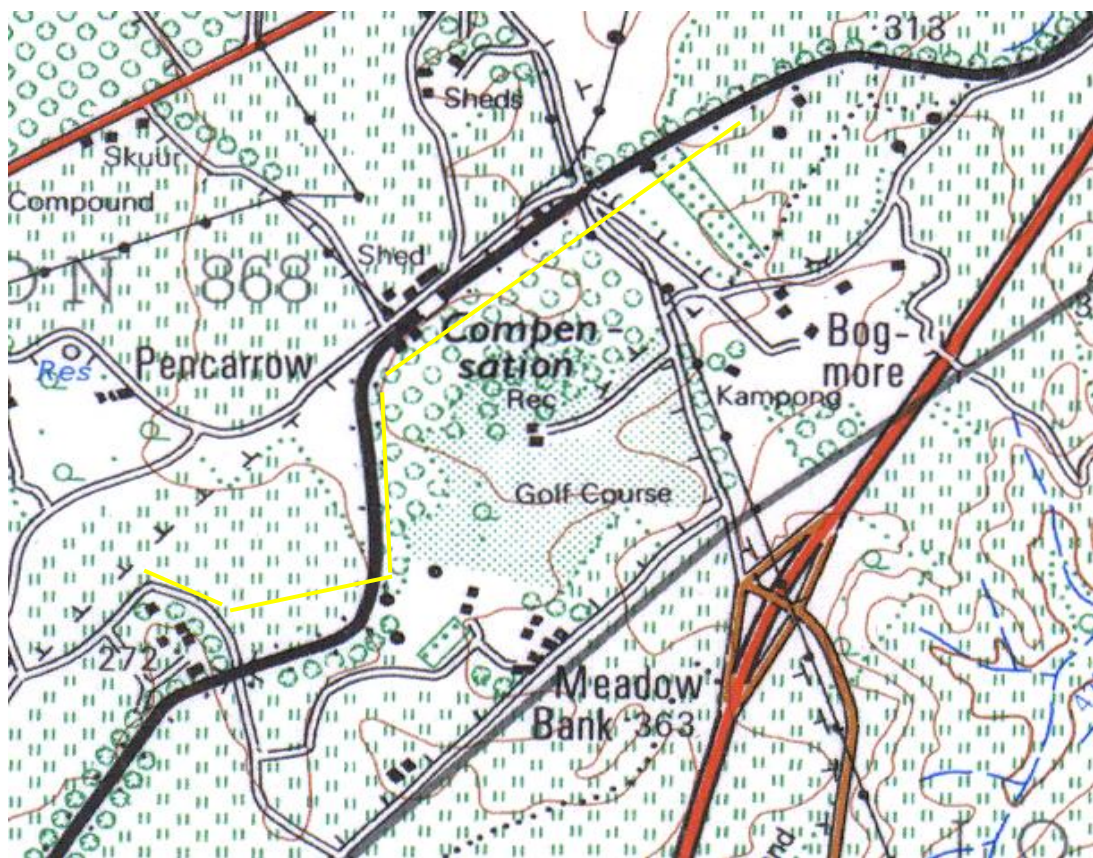


Figure 3: 1969 topographic map with pipeline indicated in yellow

7. RESULT OF SITE INSPECTION

The inspection started at the Caledon Estate pump station. The area surrounding the pump station is manicured as it is located within a residential estate. The proposed sewer pipeline will exit the pump station from its western side and then turn southwards once outside the Estate. This section of pipeline is located between the Estate boundary fence and a railway line hence the area is disturbed and overgrown with vegetation. No heritage sites were found here.



Figure 4: Area between fenced pump station and boundary of Caledon Estate



Figure 5: Pipeline route west of Estate boundary wall

The route runs alongside and immediately east of the railway line and is located between the railway line and some buildings including the Builder's Express. No heritage sites were found along this section of the pipeline route.



Figure 6: Pipeline route is situated close to railway line



Figure 7: Pipeline route located between railway line and Builders Express

The proposed pipeline route then runs along the boundary of the uMhlali Country Club between the Country Club and the railway line for over one kilometre before turning sharply to the west to

cross the railway line. The area between the Country Club and railway line is disturbed by an existing road and previous building activity. The area is also overgrown with vegetation and there is existing sewer infrastructure in the area with several manholes and a visible pipeline. The pipeline is located just over 20m east of the Compensation Railway Station.



Figure 8: Boundary wall of Country Club and adjacent area



Figure 9: Project area between Country Club and railway line

The railway station and associated buildings appear in the 1942 topographic map. Due to their age, they are protected by section 37 (1)(a) of the KwaZulu-Natal Amafa and Research Institute Act, 2018, which refers to the protection of structures that are or that may reasonably be expected to be older than 60 years. The railway station is no longer in use and the buildings are abandoned.



Figure 10: External view of section of railway station



Figure 11: View of buildings and platform



Figure 12: Railway line, platform and associated building

During the inspection a water tank on a platform was discovered further south of the railway station. It does not appear to be used any longer and its age could not be determined.



Figure 13: Elevated water tank on platform

Two men walking along the railway line were asked about heritage sites along the pipeline route. They said that, to their knowledge, there were no graves or sites of heritage interest in the area.

The proposed pipeline route west of the railway line goes through sugar cane fields and alongside a small watercourse before it reaches the Compensation pump station. Manholes are evidence of existing infrastructure along the pipeline route. The sugar cane had recently been cut hence visibility was good. No heritage sites were found during the site inspection.



Figure 14: Project area west of railway line



Figure 15: Pipeline route adjacent to watercourse



Figure 16: Compensation pump station

Heritage sites found during the inspection are listed below.

Table 1: Heritage sites found during site inspection

Description	Coordinates	Significance	Mitigation
Compensation railway station buildings	29°30'35.6" S 31°11'29.4" E	Low heritage significance	Age of structures >60 years; leave <i>in-situ</i> ; however, if they are to demolished or altered, this can only be done once the relevant permit has been received from the Institute
Elevated water tank	29°30'38.2" S 31°11'27.9" E	Low heritage significance	Age of structure could not be determined. It is recommended that it be left <i>in-situ</i> ; however, it can be altered or demolished once its age has been ascertained & relevant permit has been received from the Institute

The fossil sensitivity map of the South Africa indicates that the proposed sewer pipeline project falls into a zone of high fossil sensitivity which requires that a desktop palaeontological study is undertaken. Such a study was undertaken. The desktop palaeontological study found that the proposed pipeline route lies on the aeolianite and red and white sands and basal conglomerate of the Umkwelane Formation (formerly Berea Formation), Maputaland Group. The surface has loose sands and dense vegetation so the surface will not preserve any fossils.

There is a small chance that marine molluscs and shark teeth from the Umkwelane Formation (Maputaland Group) of middle Miocene to Pliocene Age might be disturbed from below ground sediments. Therefore, a Fossil Chance Find Protocol should be added to the Environmental Management Programme (EMPr). Based on this information, it is recommended that no palaeontological site visit is required unless fossils are found when excavations commence. As far as the palaeontology is concerned, the project should be authorised (Bamford 2021:2).

8. DISCUSSION AND CONCLUSION

During the site inspection, structures were found that are protected by section 37 (1)(a) of the KwaZulu-Natal Amafa and Research Institute Act, 2018, which refers to the protection of structures that are or that may reasonably be expected to be older than 60 years. The Compensation railway station and associated buildings are protected by this section; however, the buildings are abandoned and not in a good condition hence the low heritage significance ascribed to them. The installation of the pipeline should not impact the structures and they should be left *in-situ*.

However, if the structures are to be impacted, then application must be made to the Institute in terms of the process described in section 3 of the draft KwaZulu-Natal & Research Institute Regulations, 2021 or section 2 of the KwaZulu-Natal Heritage Regulations 2012 if the 2021 regulations have not been officially promulgated by the time an application is made. This section refers to an application to the Institute for the demolition, alteration or addition to a structure which is, or which may reasonably be expected to be older than 60 years.

The age of the elevated water tower could not be determined. It is situated very close to the proposed pipeline and could therefore be impacted. A built heritage specialist will need to be consulted if this structure is to be demolished, altered or damaged by the installation of the pipeline. It is recommended that the structure be left *in-situ* and be cordoned off with danger tape to avoid damage by the activities associated with the installation of the pipeline.

However, if the structure is to be impacted in any way and it is determined that the structure is older than 60 years, then application must be made to the Institute in terms of the process described in section 3 of the draft KwaZulu-Natal & Research Institute Regulations, 2021 or section 2 of the KwaZulu-Natal Heritage Regulations 2012 if the 2021 regulations have not been officially promulgated by the time an application is made.

With the above in mind and taking cognisance of the mitigation measures provided below, the project may proceed from a heritage perspective.

9. MITIGATION MEASURES

- For any chance heritage finds, all work must cease in the area affected and the Applicant / Contractor must be immediately informed. A registered heritage specialist must be called to site to inspect the finding/s. The Institute must be informed about the finding/s.
- The heritage specialist will assess the significance of the resource and provide guidance on the way forward.
- Permits must be obtained from the Institute if heritage resources are to be removed, destroyed or altered.
- Under no circumstances may any heritage material be destroyed or removed from site unless under direction of a heritage specialist.
- Should any recent remains be found on site that could potentially be human remains, the South African Police Service as well as the Institute must be contacted. No SAPS official may remove remains (recent or not) until the correct permit/s have been obtained.
- All recommendations and mitigation measures provided in the desktop palaeontological study must be adhered to.

10. REFERENCES

Bamford, M. 2021. *Palaeontological Impact Assessment for the proposed Caledon to Compensation Sewer Pipeline, Umhlali, KwaZulu Natal Province. Desktop Study (Phase 1)*

Department of Rural Development and Land Reform's CDNGI Geospatial Portal (www.cdngiportal.co.za)

eThembeni Cultural Heritage. 2008. *Heritage Impact Assessment of Ballito Crushers Quarry Expansion, Shakaskraal, KwaZulu-Natal, South Africa*

eThembeni Cultural Heritage. 2013. *Phase 1 Heritage Impact Assessment Report: Proposed Greenlands Town Centre at Ballito, KwaDukuza Local Municipality, Ilembe District, KwaZulu-Natal*

Enviropro. 2021. *Notice of application for environmental and water use authorisation: Caledon sewer pipeline*

South African Heritage Resources Authority Information System. 2012. *Morewood Sugar Mill memorial garden, Farm Compensation 868, Lower Tugela District. 9/2/418/0015*

Van Schalkwyk, J. 2016. *Cultural heritage impact assessment for the upgrade of the National Route N2, section 26 and 27, from the oThongathi toll plaza (N2/26 KM 21.0) to the Ballito Interchange (N2/27 KM 7.4), KwaZulu-Natal*