

**PROPOSED UMZIMKHULU BULK WATER PIPELINE,
KWAZULU-NATAL**

Phase 1 Heritage Assessment

22 March 2019

Client: SPHE Consulting Services

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EXECUTIVE SUMMARY

Impande Consulting Engineers were appointed by the Harry Gwala District Municipality to construct the Umzimkhulu bulk water pipeline. The residents of the District Municipality require clean drinking water. There have been recent service delivery protests regarding the issue and the provision of clean drinking water will play a role in improving the lives of the people of the District.

The length of the pipeline is 1.70 km in length 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. The relevant section of the Act refers to the “the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length”.

The town of Umzimkhulu is situated in southern KwaZulu-Natal. The pipeline is situated on the northern outskirts of the town and to the west of the Umzimkhulu River.

A site inspection was undertaken on 5 March 2019. Visibility was not good as much of the pipeline route goes through dense vegetation for much of its length. The route of the proposed pipeline was inspected on foot.

A Google Earth image from 2001 shows clearly cultivation of land immediately north of the Mvubukazi River which today is no longer cultivated. In addition, there are no buildings at the south-east start/end point of the pipeline. This had changed by 2010 when several buildings are visible at this start/end point.

The site inspection started at the pipeline’s south-east start/end position where it is situated between a tar road and a business that makes precast walls. This area is highly disturbed with a gravel access road and buildings. From here, the pipeline runs on the eastern side of the tarred road that goes to the settlements of Nguse, Dryhoek and Sicelweni that are situated to the north-west of Umzimkhulu. It also crosses the Mvubukazi River, a tributary of the Umzimkhulu River.

The 1: 50 000 topographical map that was surveyed in 1965 (with aerial photography taken in 1958) of this section of the pipeline route shows the existence of several structures near the Mvubukazi river as well as cultivated land near the Umzimkhulu River. The two structures closest to Umzimkhulu were telephone and telegraph lines. The round dots are assumed to be houses or farm buildings. Today, the telephone lines are gone. No other remains were found, and it should be noted that the round structures/dots are situated some distance from the proposed pipeline and any remains (if any) should not be impacted by the pipeline.

Approximately 130 m north-west of the Mvubukazi River, several structures were found. The structures appear to be quite old and are run-down. The specialist established from three individuals who live in the structures that there are no graves in the area. North of the structures, the remains of a concrete floor were found. No other remains associated with the floor were found.

The Fossil Sensitivity Map of South Africa indicates that the pipeline falls into an area of moderate sensitivity. An area of moderate sensitivity requires a desktop palaeontological study. Although sections of the area which the pipeline crosses have been disturbed, there are sections that are undisturbed hence it is recommended that a desktop palaeontological study is undertaken prior to the construction of the proposed pipeline.

The palaeontological desktop assessment established that the proposed pipeline route lies on the sandstones and mudstones of the late Carboniferous-early Permian Dwyka Group and Pietermaritzburg Formation shales that are potentially fossiliferous. Early Glossopteris flora plants might occur in the Dwyka mudstones only. Surface exposures are likely to be very weathered, but fossil may occur below the surface. Therefore, a Fossil Chance Find Protocol should be added to the EMP. Based on this information it is recommended that no palaeontological site visit is required unless fossils are revealed once excavations and drilling has commenced.

It is recommended that the structures found along the pipeline route are left intact as they could potentially be older than 60 years and are occupied by several individual who would lose their place of residence if the buildings were destroyed. This would have a high negative socio-economic impact on the individuals occupying the structures.

A desktop palaeontological study must be undertaken of the pipeline route prior to its construction. All recommendations and mitigation measures made by the study must be implemented.

Once the above recommendations have been undertaken, the construction of the proposed bulk water pipeline can proceed from a heritage perspective. The mitigation measures provided in this report must also be implemented and adhered to where applicable.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ii
TABLE OF CONTENTS	iv
AUTHOR DETAILS	v
1. INTRODUCTION	6
2. LEGISLATIVE BACKGROUND	6
3. LOCATION	7
4. TERMS OF REFERENCE	10
5. METHODOLOGY	10
6. HISTORICAL CONTEXT OF STUDY AREA	10
7. RESULTS OF SITE INSPECTION	11
8. RECOMMENDATIONS AND CONCLUSION	20
9. MITIGATION MEASURES	20
10. REFERENCES	22

FIGURES

Figure 1: Pipeline indicated in red with blue indicating watercourse restrictions.....	8
Figure 2: Pipeline indicated in red in wider environment.....	9
Figure 3: 2001 Google Earth image of pipeline and surrounds.....	12
Figure 4: 2010 Google image showing buildings in south eastern corner	12
Figure 5: South-eastern start/end point of pipeline	13
Figure 6: Looking northwards along pipeline route	13
Figure 7: Pipeline route showing bridge crossing Mvubukazi River.....	14
Figure 8: Section of topographical map showing structures.....	14
Figure 9: Buildings close to pipeline route	15
Figure 10: Section of building close to pipeline route.....	15
Figure 11: Undetermined vehicle.....	16
Figure 12: Fallow land lying east of pipeline route	16
Figure 13: Remains of concrete floor	17
Figure 14: Vegetation along pipeline route.....	17
Figure 15: Pipeline route to east of road	18
Figure 16: View of Umzimkhulu River towards north-western start/end point	18
Figure 17: Fossil sensitivity of project area outlined in red	19

Table 1: Heritage sites	20
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I, Jean Lois 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.

AUTHOR DETAILS

Name	Qualifications	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

Impande Consulting Engineers were appointed by the Harry Gwala District Municipality to construct the Umzimkhulu bulk water pipeline. The residents of the Harry Gwala District Municipality require clean drinking water. There have been recent service delivery protests regarding the issue and the provision of clean drinking water will play a vital role in improving the lives of the people of the District and improve the economy of the area (SPHE Consulting Services 2019:2).

JLB Consulting was appointed by SPHE Consulting Services, who is the appointed environmental assessment practitioner (EAP) for the project, to undertake a Phase 1 Heritage Impact Assessment (HIA) of the proposed pipeline.

2. LEGISLATIVE BACKGROUND

The length of the pipeline is 1.70 km in length 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. The relevant section of the Act refers to the following development: *“the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length”*.

The project may also impact on 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 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).

This Phase1 HIA was undertaken to assess whether any heritage resources will be impacted by the proposed bulk water pipeline development.

3. LOCATION

The town of Umzimkhulu is situated in southern KwaZulu-Natal and inland and north-west of the coastal town of Port Shepstone. The proposed pipeline is situated on the northern outskirts of the town and to the west of the Umzimkhulu River (see **Figures 1** and **2** below).

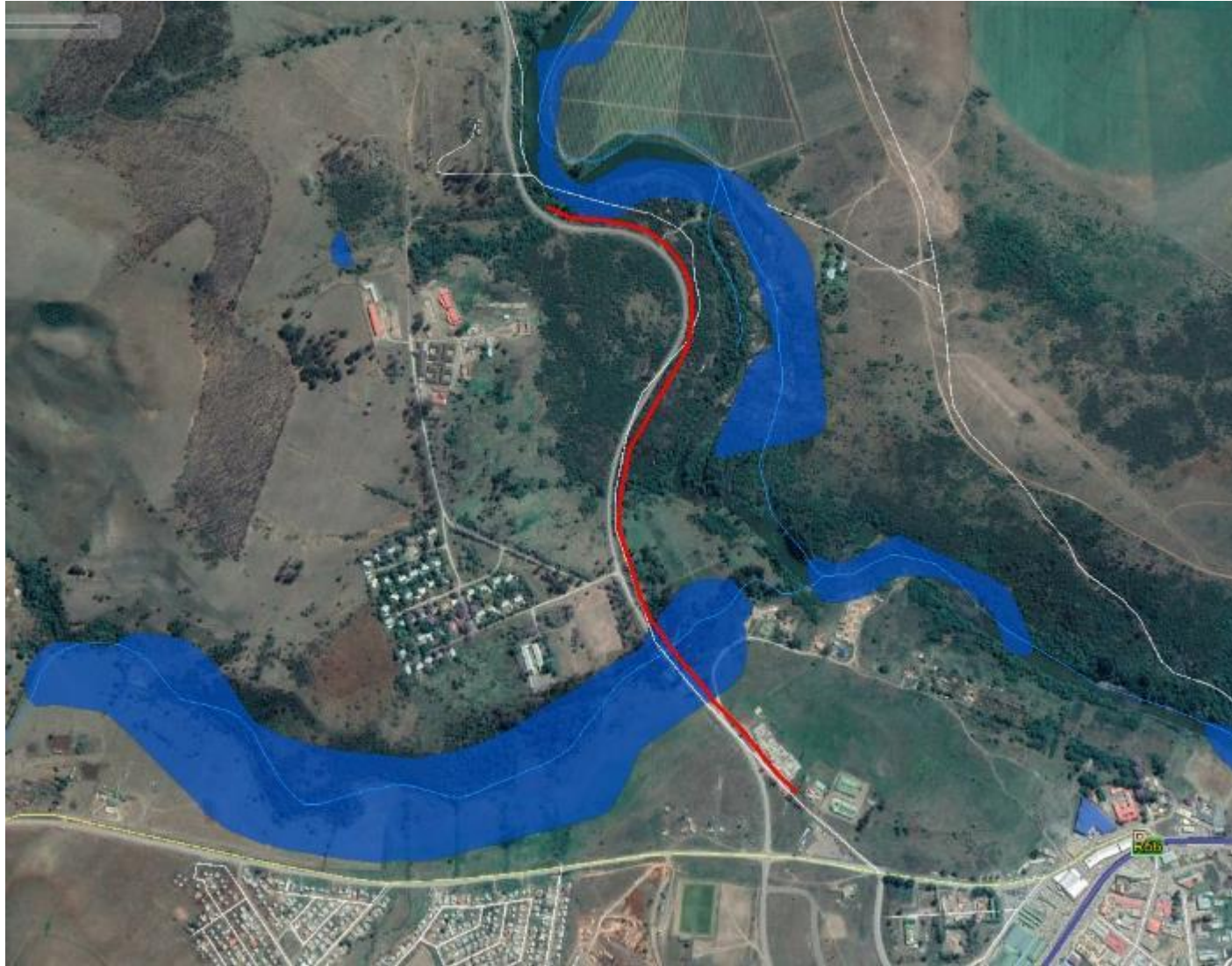


Figure 1: Pipeline indicated in red with blue indicating watercourse restrictions

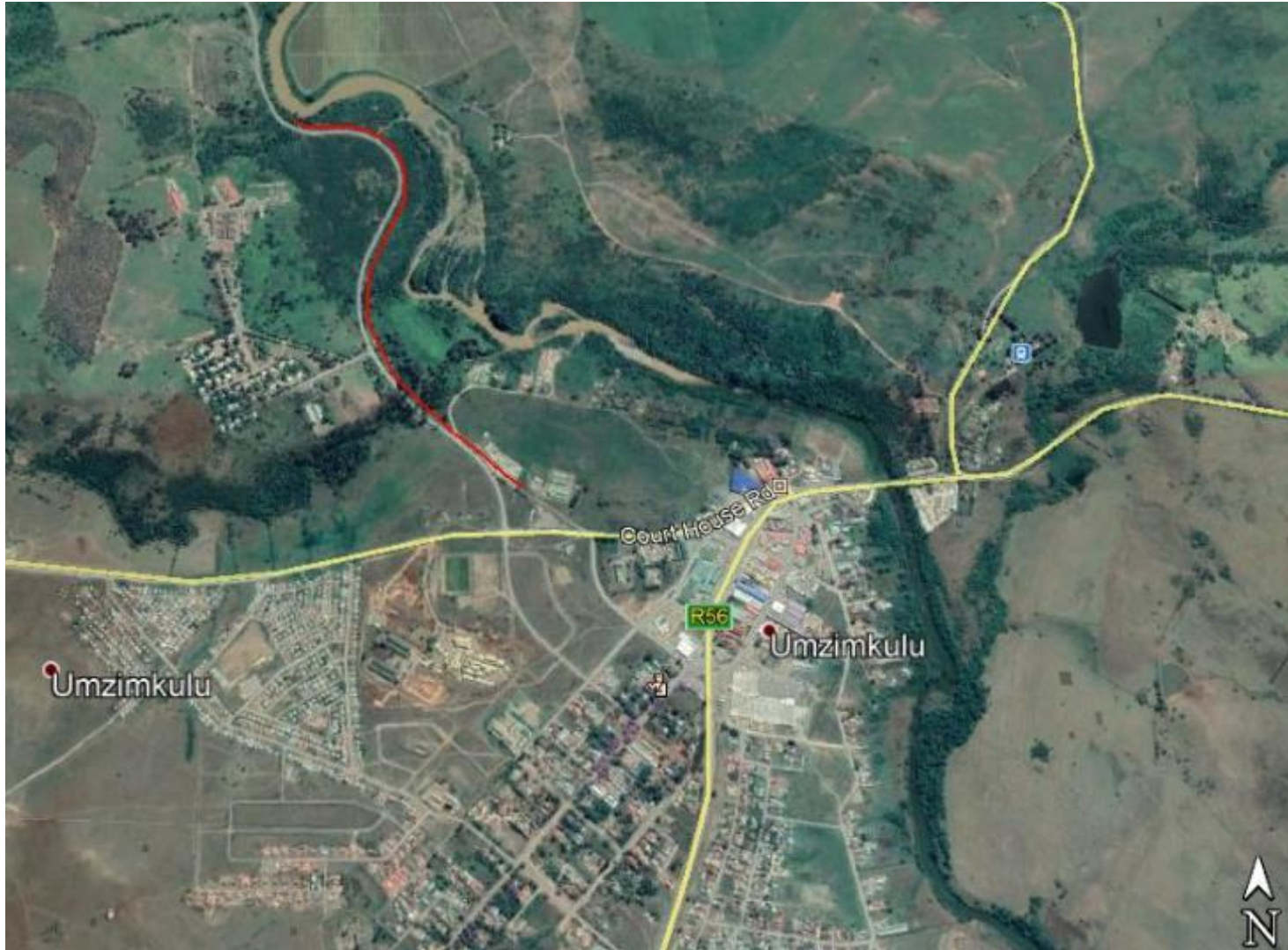


Figure 2: Pipeline indicated in red in wider environment

4. TERMS OF REFERENCE

Undertake a Phase 1 Heritage Impact Assessment in order to determine the possible existence of heritage resources, as listed above, along or close to the proposed pipeline. Provide mitigation measures to limit or avoid the impact of the construction of the pipeline on heritage resources.

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

5. METHODOLOGY

A survey of literature, including other HIA reports completed in the wider area and captured on the SAHRIS database was undertaken so that the author of this report is aware of any heritage resources identified in such reports and that could be found in the project area.

A site inspection was undertaken on 5 March 2019. Visibility was not good as much of the pipeline route goes through dense vegetation for much of its length. Sections that were accessible were walked and those sections of very dense vegetation were closely inspected.

6. HISTORICAL CONTEXT OF STUDY AREA

Early, Middle and Later Stone Age material occurs in KwaZulu-Natal. Early Stone Age material occurs primarily along the coast and in savanna areas, most especially in river valleys, and generally in secondary contexts. Middle Stone Age artefacts have a wider distribution that extends into and across the Drakensberg. Many of the recorded 'sites' comprise artefacts in a secondary context, but more important factory and knapping sites exposed in donga erosion also occur. The Later Stone Age is better known, with evidence of shelter occupation in the southern Drakensberg between 12000 and 8000 years ago. Based on research in the Thukela Basin, it seems Later Stone Age people preferred grassland environments; good evidence of occupation in savanna areas occur only from about 2000 years ago when Iron Age farmers first settled in the region (G.Whitelaw 2013:9).

According to the most recent archaeological cultural distribution sequences, KwaZulu-Natal falls within the distribution area of various Iron Age groupings originating out of both the Urewe Tradition (eastern stream of migration) and the Kalundu Tradition (western stream of migration).

African farmers did settle in sourveld grasslands during the 1800s as a result of various colonial and other forces (Whitelaw 2013:9).

Many African groups moved through the project area due to the turmoil caused in part by the expansionistic policies of King Shaka Zulu in the 1820's and subsequent civil wars in Zululand. The consolidation of Zulu power was viewed with concern by various groups including the Thembu and Chunu who had already moved to avoid subjugation by the Zulu state hence these groups and others had no option but to move further south with the Thembu eventually crossing the Mzimkulu River to settle on the margins of the Mpondo chiefdom's sphere of influence and the Chunu settling between the Mkhomazi and Mzimkhulu Rivers (Whitelaw 2013:9).

From a colonial perspective, Umzimkhulu is related to the early British settlers of the Colony. The Strachan family came to Natal from Campbeltown in Scotland, as part of the infamous Byrne Scheme which was aimed at settling the new British territorial claim of Natal. By 1858, Donald and Thomas Strachen had raised enough capital to open a trading store near their farm Clydesdale at the Drift (later Umzimkhulu) just across the Umzimkhulu River in Nomansland. The town was originally called "Madonela" meaning "the place of Donald" after Donald Strachan. It was later called Clydesdale, until finally being named Umzimkhulu after the river in the late 1800s (Anderson 2008:14).

The proposed pipeline runs past the Umzimkhulu Hospital which is a psychiatric hospital. The hospital was established on the grounds and buildings of the Mbizweni Prison, when the Transkei homeland was established in 1976 (KwaZulu-Natal Department of Health 2001:1).

7. RESULTS OF SITE INSPECTION

A Google Earth image from 2001 (**Figure 3**) of the pipeline route shows that the land immediately north of the Mvubukazi River was cultivated whereas today it is no longer cultivated nor are there any buildings at the south-east start/end point of the pipeline. This had, however, changed by 2010 when several buildings are clearly visible at this start/end point (see **Figure 4**).

The site inspection started at the pipeline's south-east start/end position where it is situated between the tar road and a business (Conrite Walls Pty Ltd) that makes precast walls. This area is highly disturbed with a gravel access road and buildings.



Figure 3: 2001 Google Earth image of pipeline and surrounds



Figure 4: 2010 Google image showing buildings in south eastern corner



Figure 5: South-eastern start/end point of pipeline



Figure 6: Looking northwards along pipeline route

From here, the pipeline runs on the eastern side of the tarred road that goes to the settlements of Nguse, Dryhoek and Sicelweni that are situated to the north-west of Umzimkhulu. It also crosses the Mvubukazi River which is a tributary of the Umzimkhulu River.



Figure 7: Pipeline route showing bridge crossing Mvubukazi River

The 1: 50 000 topographical map (3029BD) that was surveyed in 1965 with aerial photography taken in 1958 of this section of the pipeline route shows the existence of several structures near the Mvubukazi River as well as cultivated land near the Umzimkhulu River. From the reference table of the map, the two structures closest to Umzimkhulu were telephone and telegraph lines. The round dots are not referenced but it is assumed that they were houses or farm buildings.



Figure 8: Section of topographical map showing structures

Today, the telephone lines are gone. No other remains were found and it should be noted that the round dots/structures are situated some distance from the route of the proposed pipeline and remains (if any) should not be impacted by the construction of the pipeline.

Approximately 130 m north-west of the Mvubukazi River, several structures were found that are located at 30°15'18.6"S 29°55'42.9"E. One of the structures has been subdivided into individual rooms. All the structures appear to be quite old and are run-down. Their actual age could, however, not be determined.



Figure 9: Buildings close to pipeline route



Figure 10: Section of building close to pipeline route

The specialist spoke to three people who live in the structures, namely, Messrs Andries Dzanibe, Linda Ngubane and Maneni Dzanbie. They said that there were no graves in the area. They asked that they be given employment with the construction of the pipeline. It is recommended that the structures are not impacted by the proposed pipeline.

A section of a bus or of a train (see below) was found close to the above structures. It is of no significance and can be removed.



Figure 11: Undetermined vehicle

Further north, fallow land was observed between the proposed pipeline and Umzimkhulu River. The cultivation of this area is visible on **Figures 2 and 3** above and in **Figure 11** below.



Figure 12: Fallow land lying east of pipeline route

The remains of a concrete floor were found at 30°15'16.6"S 29°55'41.7"E. No other remains associated with the floor were found during the inspection. It is deemed to be of low to negligible heritage significance as only the floor of the structure that used stand there remains.



Figure 13: Remains of concrete floor

From this point onwards no further structures or sites of interest were discovered. Areas that could be accessed were inspected and close observation of overgrown areas was undertaken.



Figure 14: Vegetation along pipeline route



Figure 15: Pipeline route to east of road



Figure 16: View of Umzimkhulu River towards north-western start/end point

The Fossil Sensitivity Map of South Africa indicates that the pipeline falls into an area of moderate sensitivity as indicated by the green colour in the map below. An area of moderate sensitivity requires a desktop palaeontological study. Although sections of the area which the pipeline crosses have been disturbed, there are sections that are undisturbed hence it is recommended that a desktop palaeontological study is undertaken prior to the construction of the proposed pipeline.

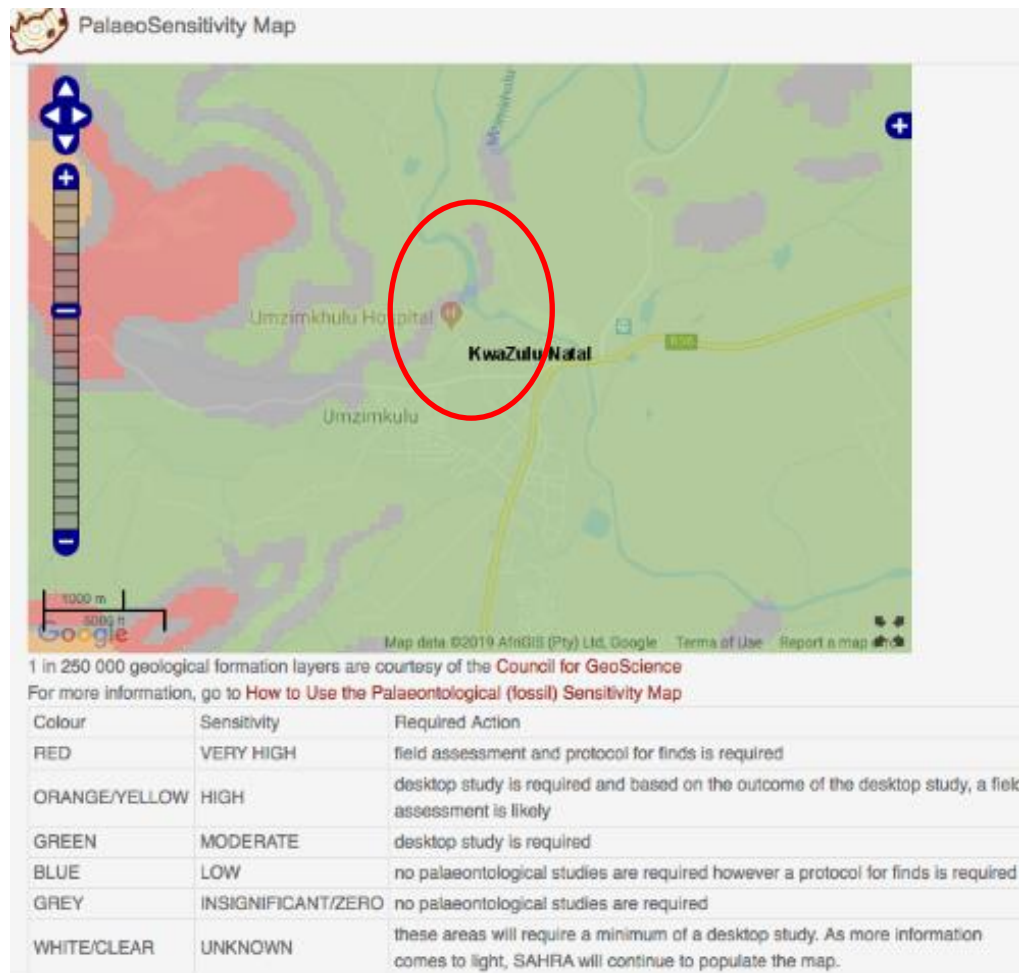


Figure 17: Fossil sensitivity of project area outlined in red

The desktop palaeontological assessment revealed that based on the nature of the project, surface activities may impact upon the fossil heritage if preserved in the development footprint. Underlying rocks of the late Carboniferous-early Permian Dwyka Group, Karoo Supergroup, namely the tillites, shales and mudstones, might preserve fossil vertebrates or plants but this will only be evident once excavations commence. Although no fossils have been recorded from near Umzimkhulu there is a small chance that fossils from the Dwyka Group may be disturbed so a Fossil Chance Find Protocol (included in section 8 of the desktop report) must be included in the Environmental Management Programme (EMPr). Taking account of the defined criteria, the potential impact to fossil heritage resources is deemed to be low.

Based on the above information, it is recommended that no palaeontological site visit is required unless fossils are revealed once excavations and drilling has commenced. If fossils are found, then they should be rescued and a palaeontologist called to assess and collect a representative sample, with a relevant permit from AMAFA.

The sites found during the inspection of the pipeline route and adjacent area are listed below in **Table 1**.

Table 1: Heritage sites

COORDINATES	DESCRIPTION	Significance	MITIGATION
30°15'18.6"S 29°55'42.9"E	Structures	Possibly > 60 years; even if not >60 years the structures are occupied hence of high social significance	5 m buffer around all structures in which no construction activity may take place
30°15'16.6"S 29°55'41.7"E	Concrete floor	Low significance	Can be altered, destroyed or removed

8. RECOMMENDATIONS AND CONCLUSION

It is recommended that the structures found along the pipeline route are left intact as they could potentially be older than 60 years and are occupied by several individual who would lose their place of residence if the buildings were destroyed. This would have a high negative socio-economic impact on the individuals occupying the structures.

If, during the clearing of the vegetation in preparation for the construction of the pipeline, any sites or remains are found that could be heritage resources, then work in the immediate area of the find must be stopped and a heritage specialist called to site to assess the find. Work can only commence once the specialist gives the go-ahead.

A desktop palaeontological study must be undertaken of the pipeline route prior to its construction. All recommendations and mitigation measures made by the study must be implemented.

Once the above recommendations have been undertaken, the construction of the proposed bulk water pipeline can proceed from a heritage perspective. The mitigation measures provided below must also be implemented and adhered to where applicable.

9. MITIGATION MEASURES

- For any chance finds of any type of heritage resource, all work must cease in the area affected and the Contractor must immediately inform the Project Manager. A registered heritage specialist must be called to site for inspection. The provincial heritage resource agency (Amafa) must also be informed about the finding.
- The heritage specialist will assess the significance of the resource and provide guidance on the way forward.

- Permits 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 are to be protected by a 5 m 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.
- Should any remains be found on site that is potentially human remains, the South African Police Service (SAPS) should also be contacted. No SAPS official may remove remains (recent or not) until the correct permit/s have been obtained.

10. REFERENCES

Anderson, G. 2008. *Heritage Survey of Umzimkhulu Town*.

KwaZulu-Natal Department of Health. 2001. *History of Umzimkhulu Hospital*. (<http://www.kznhealth.gov.za/umzimkhulu/history.htm>). Retrieved 19 March 2019

Whitelaw, G. 2013. *Phase 1 Heritage Resources Scoping Report. Proposed Forestry Project, B.J. Mbanjwa, Sisonke District, Kokstad Municipal Area, KwaZulu-Natal*