HERITAGE SURVEY OF THE ETHEKWINI WATER AND SANITATION WESTERN AQUADUCT: "VOORTREKKER ROAD"

FOR KNIGHT PIESOLD

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INTRODUCTION

“EThekwini Water and Sanitation (EWS) will install a new bulk water pipeline from Camperdown to Inanda and Pinetown in two phases, supplying Durban (and surrounds) with gravity-fed potable water. The pipeline will tie into Umgeni Waters existing bulk water infrastructure beyond the eThekwini Municipality's boundary which receives potable water from the Midmar Dam system. As the project falls within two different municipal areas, it will be undertaken by two different water service providers:

- The augmentation of the section between Camperdown and Cato Ridge will fall under the jurisdiction of Umgeni Water (UW) and this section is referred to as the ‟57 Pipeline
- The section between Cato Ridge and Inanda will fall under the jurisdiction of eThekwini Water and Sanitation (EWS) and this section is referred to as “Western Aqueduct” (WA).

Although two different water service providers will undertake the project, the engineering design and construction of the project is not limited by the water service provider’s jurisdictions. The engineering project has been divided into two phases, the first of which will be under the jurisdiction of both Umgeni Water and eThekwini Municipality water service providers, whilst the second falls only under eThekwini Municipality’s control:

- Phase 1 constitutes 17km of pipeline between Camperdown and Inchanga including the augmentation of the ‟57 Pipeline and the construction of the WA up to Inchanga Railway Station… [not related to this report]
- Phase 2 constitutes the remainder of the route to Inanda and Pinetown (approximately 56 kilometres) and is the topic of this report.

The scope of the heritage resource management activities is based on the following assumptions:

 That the pipe route will traverse approximately 56 kilometres between Inchanga Railway Station and Ntuzuma, with two branch lines to Tshelimnyama and Pinetown

 A working servitude of approximately 30 metres in width will be necessary in most instances

 The steel pipe diameters will vary between 1600mm and 1000mm and will have a cathodic protection to prevent corrosion

 Trench excavations in excess of 2m in depth and a maximum of 350 metres in length will be open at any one time, and termed „the active site"

 More than one active site may exist at any one time

 The works will affect road, pipeline and rail routes between Durban and Pietermaritzburg

 During the Environmental Impact Assessment (EIA) process the only known heritage resources that would potentially be affected by the Western Aqueduct where items within the railway servitude. However since the RoD, additional heritage resources have been identified and include Voortrekker Route remnants, Late Iron Age and recent historically relevant settlements, stone walling, and unmarked grave sites" (Heritage Resource Management Plan Construction Phase 2, 2012:11)

The current pipeline and this report only deals with the alleged Voortrekker Route. The project has had an HIA undertaken in 2006 by eThembeni, and this was approved by Amafa KZN in 2008 (06/08/07-2 & 06/09/28-01). This approval stipulated that the Railway Heritage Resources may not be damaged.

Umlando was requested to undertake a site visit on 25 July 2013 to assess the suspected Voortrekker Road in relation to the pipeline. This report deals only with this section of the road. The location is shown in figures 1 - 3

FIG. 1 GENERAL LOCATION OF THE WESTERN AQUADUCT

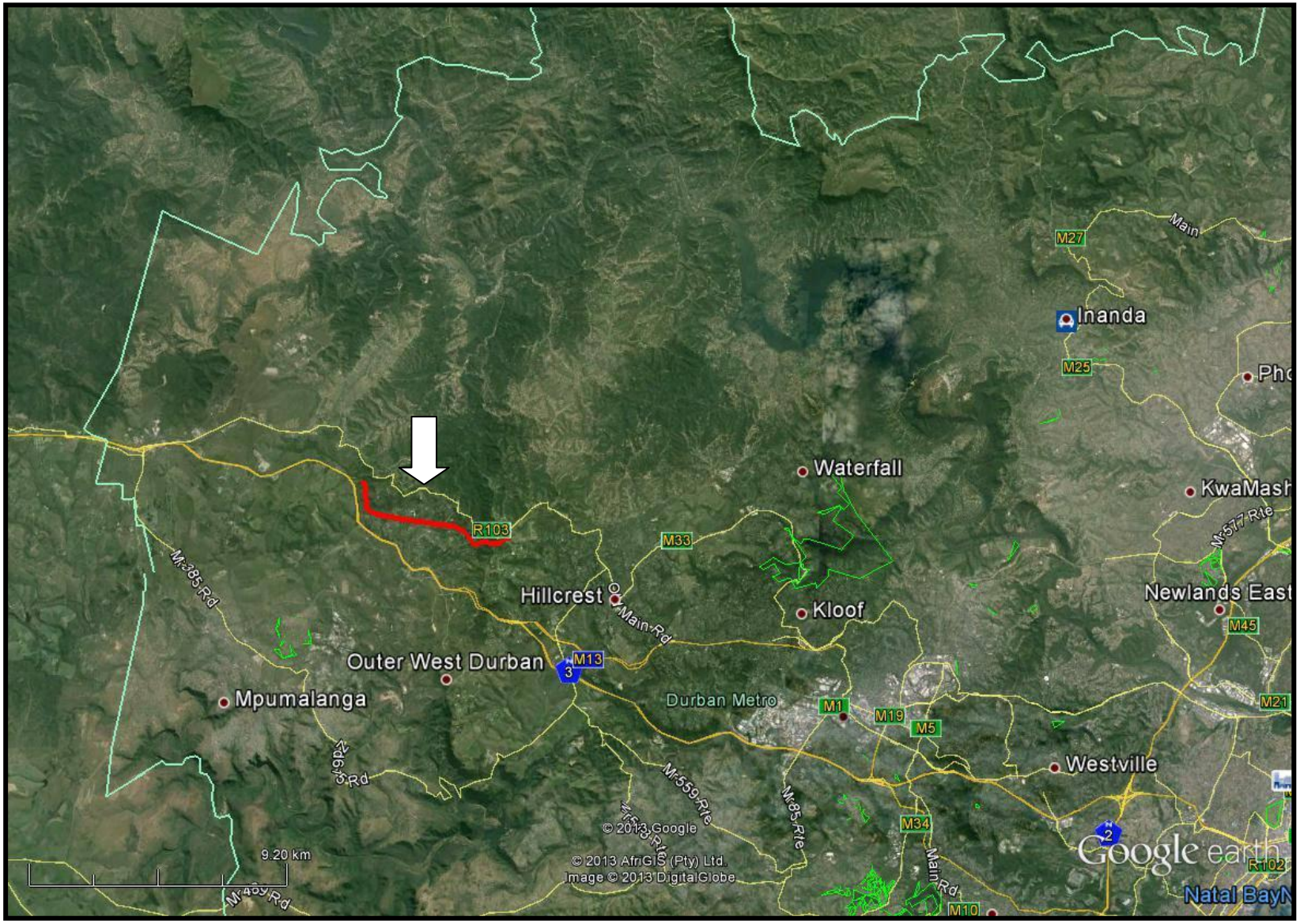


FIG. 2: AERIAL OVERVIEW OF THE WESTERN AQUADUCT

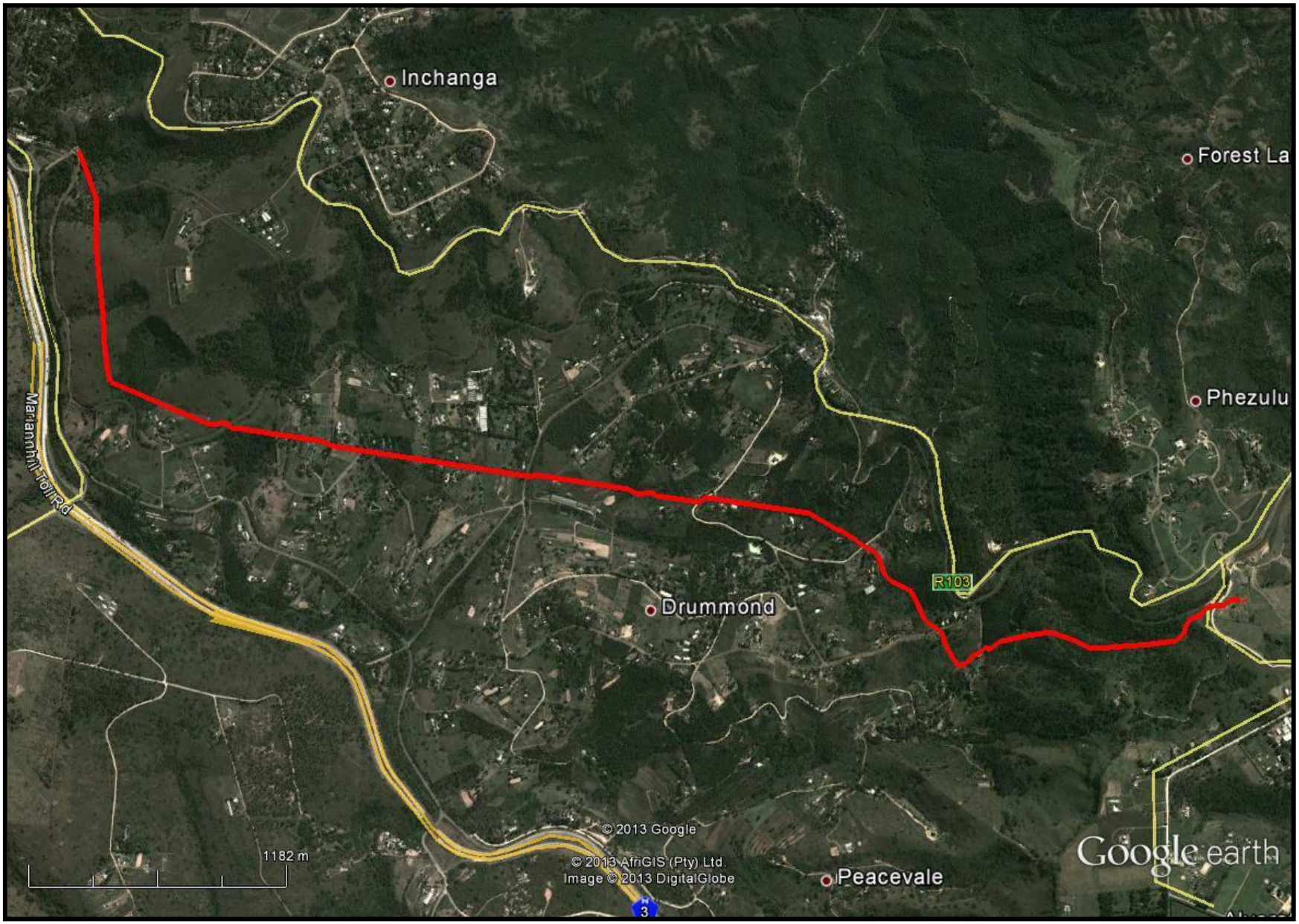
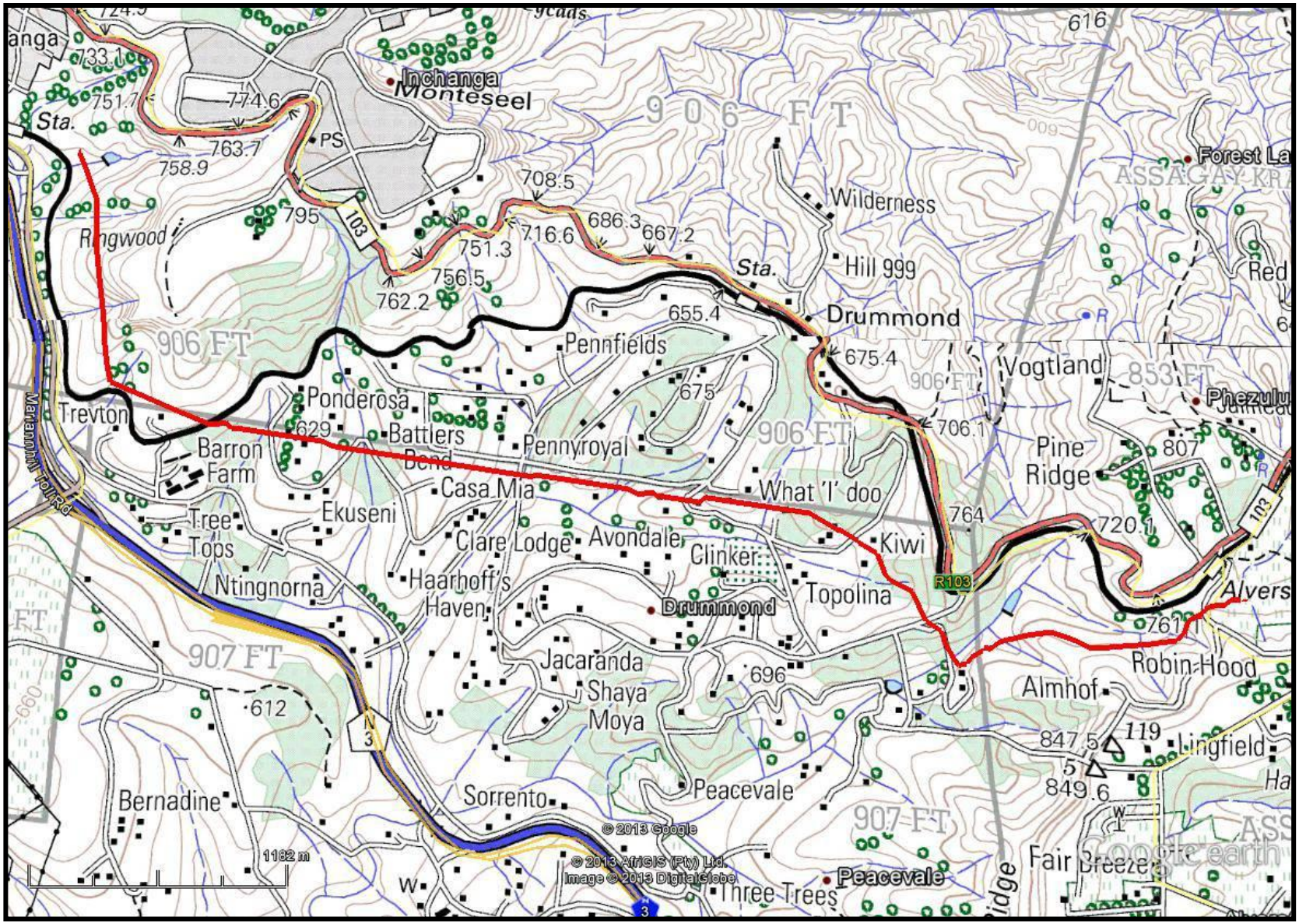


FIG. 3: TOPOGRAPHICAL MAP OF THE WESTERN AQUADUCT



KWAZULU-NATAL HERITAGE ACT NO. 4 OF 2008

"General protection: Structures.—

- No structure which is, or which may reasonably be expected to be older than 60 years, may be demolished, altered or added to without the prior written approval of the Council having been obtained on written application to the Council.
- Where the Council does not grant approval, the Council must consider special protection in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- The Council may, by notice in the *Gazette*, exempt—
- A defined geographical area; or
- defined categories of sites within a defined geographical area, from the provisions of subsection where the Council is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- A notice referred to in subsection (2) may, by notice in the *Gazette*, be amended or withdrawn by the Council.

General protection: Graves of victims of conflict.—No person may damage, alter, exhume, or remove from its original position—

- the grave of a victim of conflict;
- a cemetery made up of such graves; or
- any part of a cemetery containing such graves, without the prior written approval of the Council having been obtained on written application to the Council.
- General protection: Traditional burial places.—
- No grave—
- not otherwise protected by this Act; and
- not located in a formal cemetery managed or administered by a local authority, may be damaged, altered, exhumed, removed from its original position, or otherwise disturbed without the prior written approval of the Council having been obtained on written application to the Council.

The Council may only issue written approval once the Council is satisfied that—

- the applicant has made a concerted effort to consult with communities and individuals who by tradition may have an interest in the grave; and
- the applicant and the relevant communities or individuals have reached agreement regarding the grave.

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites.—

- No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Council without delay.
- The Council may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit any activity considered by the Council to be inappropriate within 50 metres of a rock art site.
- No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or use

similar detection or excavation equipment for the recovery of meteorites, without the prior written approval of the Council having been obtained on written application to the Council.

- The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vest in the Provincial Government and the Council is regarded as the custodian on behalf of the Provincial Government." (KZN Heritage Act of 2008)

METHOD

The method for Heritage assessment consists of several steps.

The first step forms part of the desktop assessment. Here we would consult the database that has been collated by Umlando. This databases contains archaeological site locations and basic information from several provinces (information from Umlando surveys and some colleagues), most of the national and provincial monuments and battlefields in Southern Africa (http://www.vuvuzela.com/googleearth/monuments.html) and cemeteries in southern Africa (information supplied by the Genealogical Society of Southern Africa). We use 1st and 2nd edition 1:50 000 topographical and 1937 aerial photographs where available, to assist in general location and dating of buildings and/or graves. The database is in Google Earth format and thus used as a quick reference when undertaking desktop studies. Where required we would consult with a local data recording centre, however these tend to be fragmented between different institutions and areas and thus difficult to access at times. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The survey results will define the significance of each recorded site, as well as a management plan.

All sites are grouped according to low, medium, and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts or features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips, and decorated sherds are sampled, while bone, stone, and shell are mostly noted. Sampling usually occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features.

Defining significance

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

These criteria are:

1. State of preservation of:

1.1. Organic remains:

1.1.1. Faunal

1.1.2. Botanical

1.2. Rock art

1.3. Walling

1.4. Presence of a cultural deposit

1.5. Features:

1.5.1. Ash Features

1.5.2. Graves

1.5.3. Middens

1.5.4. Cattle byres

1.5.5. Bedding and ash complexes

2. Spatial arrangements:

2.1. Internal housing arrangements

2.2. Intra-site settlement patterns

2.3. Inter-site settlement patterns

3. Features of the site:

3.1. Are there any unusual, unique or rare artefacts or images at the site?

3.2. Is it a type site?

3.3. Does the site have 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.

8. Other Heritage Significance:

8.1. Palaeontological sites

8.2. Historical buildings

8.3. Battlefields and general Anglo-Zulu and Anglo-Boer sites

8.4. Graves and/or community cemeteries

8.5. Living Heritage Sites

8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

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

RESULTS

DESKTOP STUDY

The desktop study consisted of analysing various maps for evidence of prior habitation in the study area, as well as for previous archaeological surveys. The archaeological database indicates that there are archaeological sites, which include all types of Stone Age and Iron Age sites, in the general area (fig. 4A); however, no sites occur in the study area.

No national monuments, battlefields, or historical cemeteries are known to occur in the study area. There are several cemeteries outside of the study area. These cemeteries are in church grounds and have existing walling. The railroad and associated buildings do occur in the study area and these are protected. The database does note that the original “Voortrekker Road” occurs some 17km southwest of the study area.

The 1937 aerial photographs (fig. 5 a - b) do not clearly show the road. In fact, it is not visible in most areas. There is a slight indication of a road to the east of the area marked ‘Path 2’. Other roads and tracks are visible on the 1937 aerial photographs. This would suggest that the road did not exist in 1937; alternatively, it does not show on the map. If the road had not been used for a while, it would be overgrown and not show on the map.

The 1968 topographical map (fig. 6) does not indicate any road or track in the study area. The maps do indicate a road to a house (yellow arrow) and a presumed labourer’s settlement (green arrow) without a track. Figure 7 shows these buildings and paths in general, while normally tracks, or old roads are indicated in these maps. Figure 8 shows a close up image. The settlements indicated by the green arrow would have been partially destroyed by the original water aquaduct. The white arrows in Figure 8 indicate the location of the road.

The 2002 to 2013 Google Earth maps clearly show the road cutting, as well as the road leading to the settlement. These are not shown in the 2000 topographical map.

In summary, the desktop study suggests that there was no large or well-used road, in the study area in 1937 and 1968. This does not mean that the road did not exist; rather, if it did exist it was not as well defined and mostly used post-1968. This has implications for structures associated with the road. If this is the case, then much of the original road has been removed or damaged through the newer road.

It must be noted that Umlando has not visited the local museum to view pictures of the road, due to time constraints.

FIG. 4: LOCATION OF KNOWN ARCHAEOLOGICAL SITES

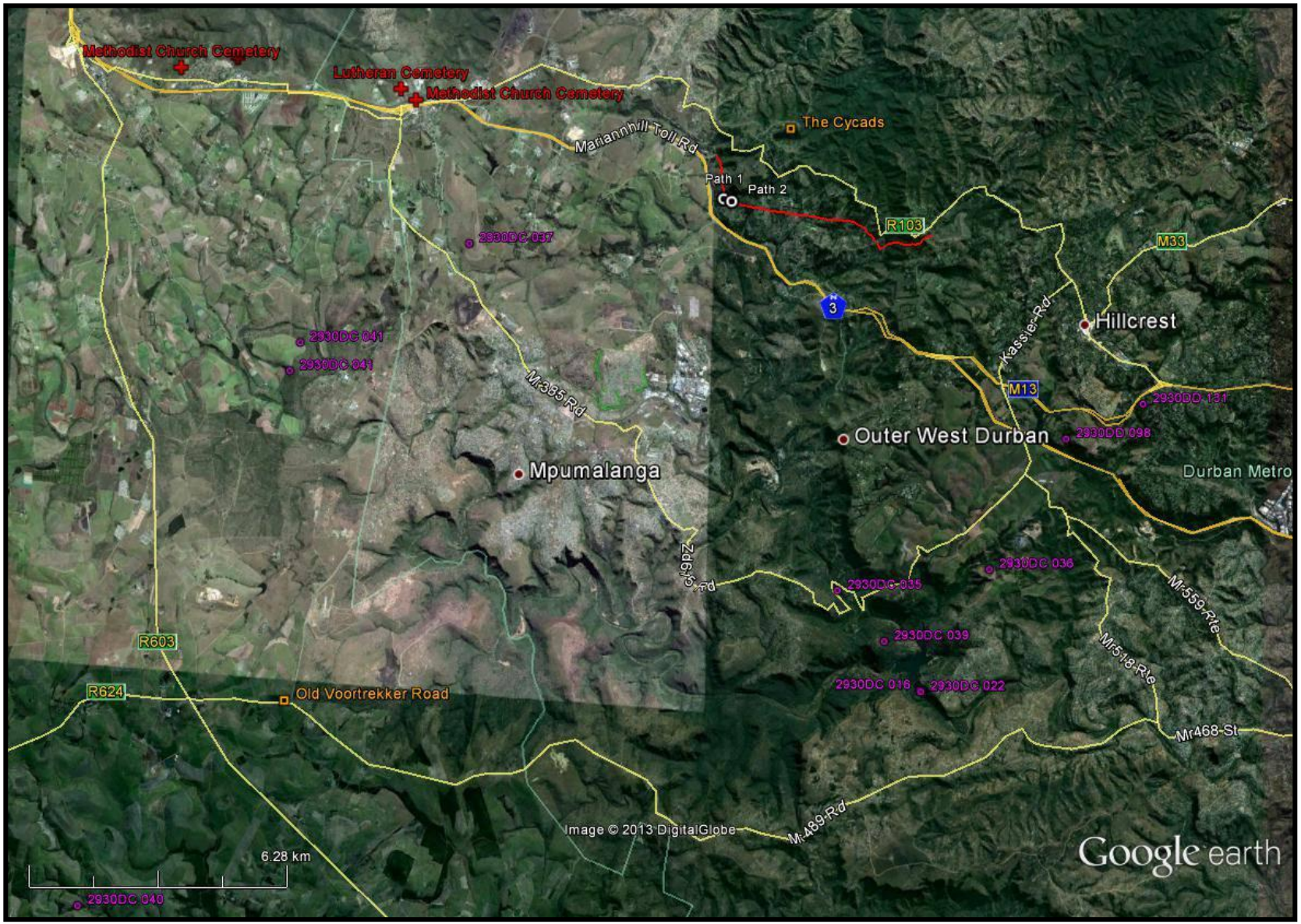


FIG. 5A: STUDY AREA IN 1937

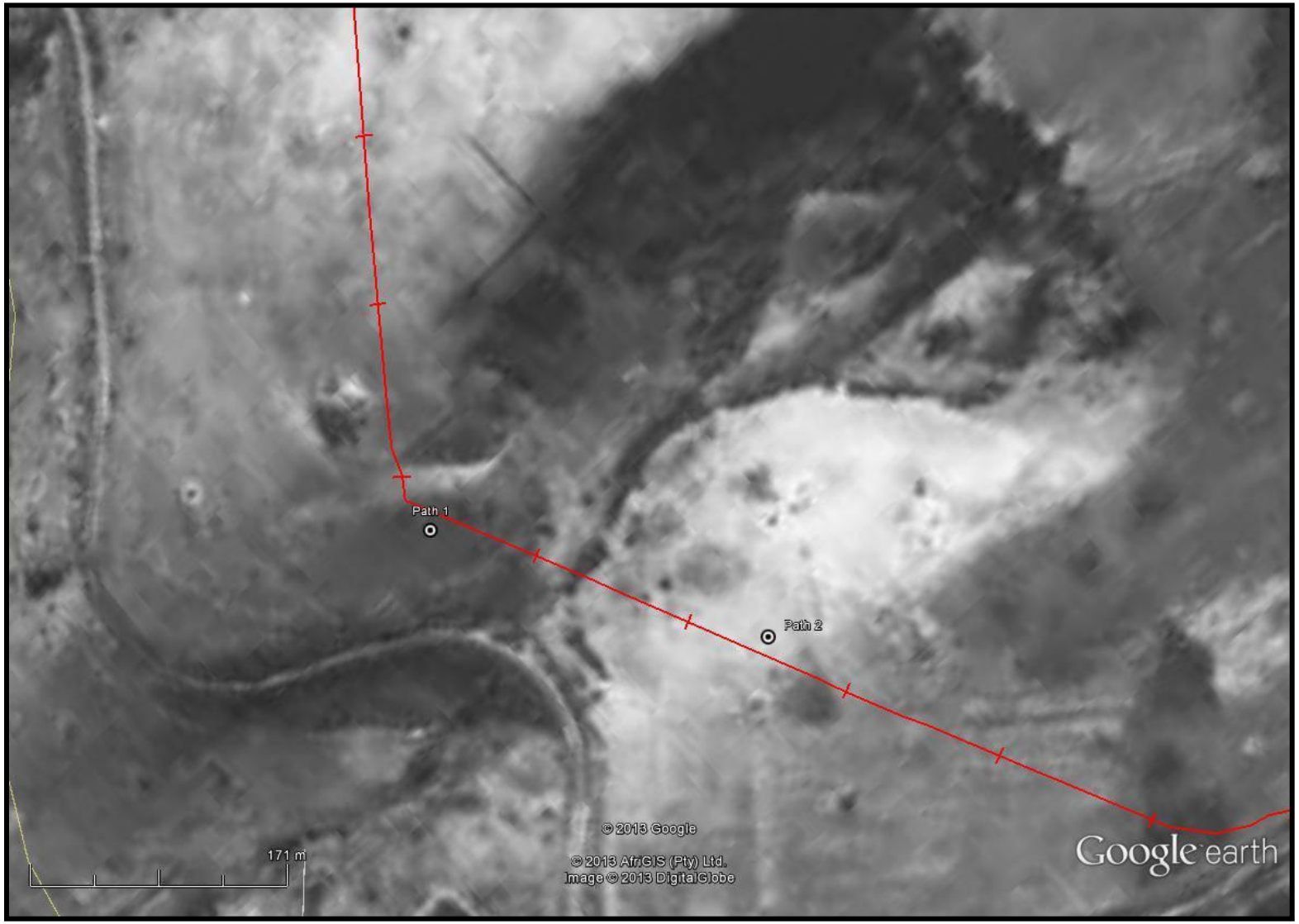


FIG. 5B: STUDY AREA IN 1937 WITH THE LOCATION OF THE PATH SUPERIMPOSED ON THE MAP

FIG. 6: STUDY AREA IN 1968

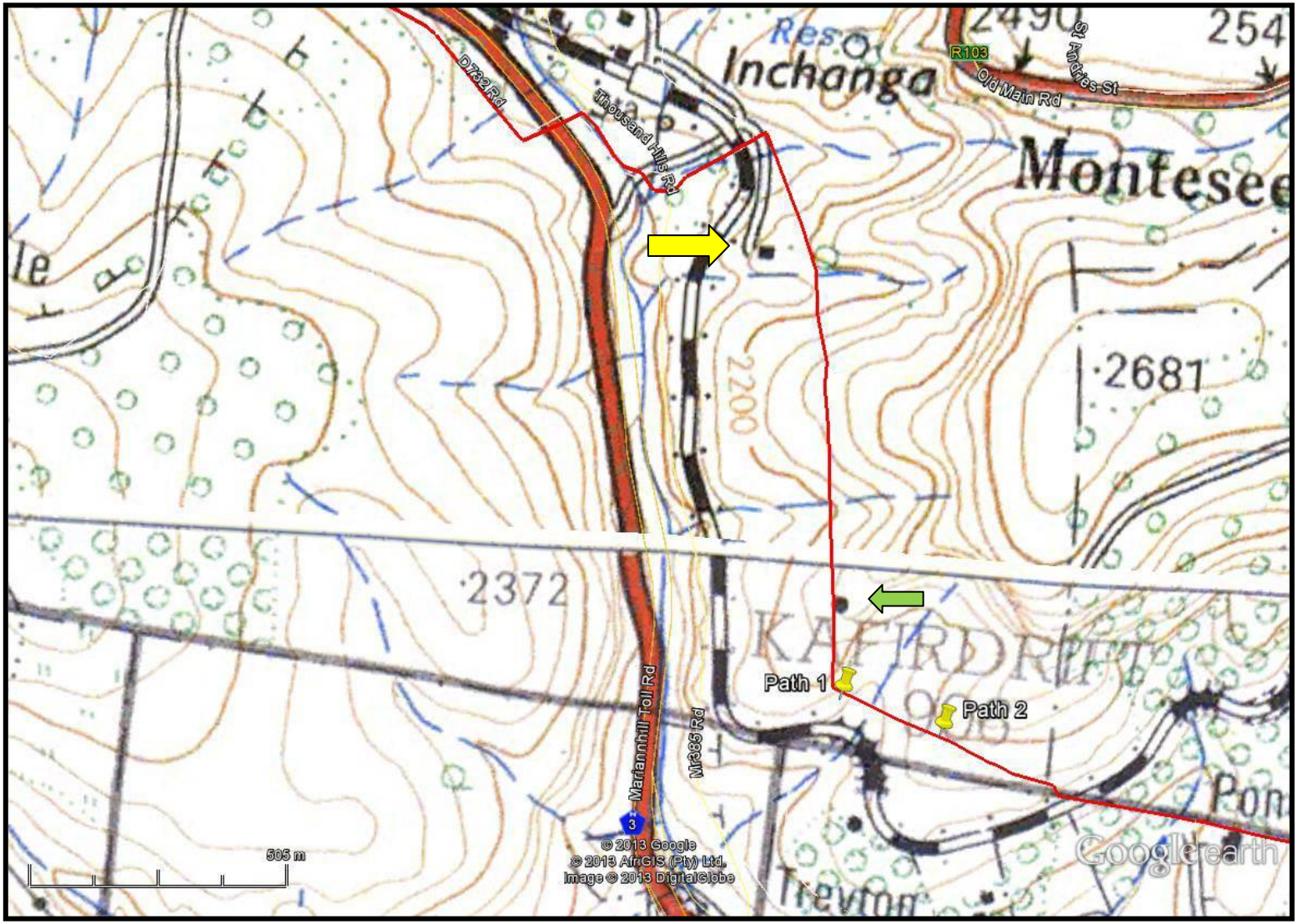


FIG. 7: STUDY AREA IN 2012

FIG. 8: STUDY AREA IN 2012

FIELD SURVEY

The field survey concentrated on the two areas directly affected by the Western Aquaduct. These are referred to as Path 1 and Path 2 on the maps and figures. The buffer zone for the aquaduct is 30m and thus any features beyond this area were not considered. The settlement referred to in the desktop study would have been damaged and partially destroyed by the existing aquaduct. The new aquaduct occurs to the east/southeast of the settlement and will thus not impact on the settlement.

The current road is a cutting into the side of the hill and varies between 1m – 1.5m in depth (fig. 9). The road is made into a sandy clay-like geological deposit, and in several areas there is evidence of modern material being used on the road. For example, there were several stones, used on the railway, on the road, and/or rocks used as anti-erosion features (fig. 10).

At Path 1, the Western Aquaduct will pass through an area already disturbed by the existing aquaduct (fig. 11). There are no features relating to wagon tracks in this section. The area where the road has been supported with anti-erosion features occurs ~50m away from the aquaduct and will thus not be affected. As a precautionary measure, this area will be barricaded during construction and demarcated as a no-go area.

Path 2 occurs across the valley. In this section, the rocks from the cutting have been placed on the outer side of the road to support the road along the edge (fig. 12). The rocks are loosely packed and there is little sand infill. This suggests that this is a more recent activity. If the rocks had been placed along this road 100+ years ago, then they would be filled with sand and other debris. My opinion is that this road support is a recent phenomenon and not related to the alleged Voortrekker Road.

FIG. 9: EXISTING ROAD CUTTING

FIG. 10: ROAD ”REPAIRS” ALONG EXISTING ROAD AT PATH 1

FIG. 11: CROSSING AREA FOR THE WESTERN AQUADUCT[1]

[1] The Western Aquaduct will occur to the right of the photo

FIG. 12: ROAD SUPPORTS AT PATH 2[2]

[2] The width of the "support" is 1m – 1.5m wide

DISCUSSION

The existing road that will be affected by the Western Aquaduct has been modified several times over the years. If this is one of the roads used by ox-wagon travellers in the past, then it has been severely compromised by more recent roadwork activity. The oral history of the area claims this road to be one of the Voortrekker Roads to Durban. However, I believe it is more a case of being one of the several roads used by travellers in general. It appears as if this road has been 'upgraded' as an access road linking two farms in the more recent past. This is not to say that the road does not date back to over 120 years ago, rather that it has been systematically modified and upgraded since 1968 in such a way that many parts do not resemble the original wagon road. In fact, the recent upgrades have probably destroyed the original wagon road, if it had existed at all in the study area.

Photographs at the local museum suggest that there was a road in this area in the past. It is possible that this road was part of one of the original wagon routes; however, it is not pristine. It is for this reason that I would argue that the existing road and related features are not older than 60 years, and should be exempt from a permit. The Western Aquaduct would not be impacting on any features directly related to the alleged Voortrekker Road, as these features have been destroyed. Moreover, the extent of impact would only be 2m – 3m and thus negligible.

MITIGATION

There are two areas of the road that will be affected. These have been labelled as Path 1 and Path 2. The area of impact around Path 1 is in existing pipeline servitude and has been damaged already. The road repairs occur 50m uphill from the Western Aquaduct and will not be affected. This area will, nonetheless, be barricaded during construction.

The area around Path 2 has remnants of supporting road structures on the outside, or downhill, of the road. While this feature is probably not older than 60 years, the impact will be limited to the width of the pipeline, i.e. 2.5m. In this area, the road support will be partially damaged by the pipeline. I suggest the impact area is kept to a minimum, and all excavation spoil heaps are placed on the uphill side of the road. This will prevent the rest of the road support structures being damaged during the backfilling stage. This area needs to be demarcated before construction and an ECO should be on site during construction to ensure that this policy is maintained.

CONCLUSION

The Western Aquaduct HIA was initiated in 2006. No heritage features were noted during this survey; however, subsequent research indicated the existence of a possible old wagon route in the study area. Umlando undertook a site inspection of the road where it would be impacted on by the Western Aquaduct. While evidence of a road exists, the historical maps suggest that this road was only noticeable between 1968 and 2002. That is, the road is not clearly visible in the 1937 aerial photographs, or on the 1968 topographical maps. The road is not indicated on the 2000 topographical maps. However, two houses, or settlements, occur on the 1968 map, and the existing road is probably a linking road between these settlements and surrounding features. The historical maps thus suggest that the road was made between 1968 and 2002.

This does not mean that an historical road did not originally exist in the affected area just that if a road did exist it was infrequently used after 1937. This led to it falling into disrepair and it was no longer visible to the naked eye. More recently, after 1968 the road found a purpose again in linking the settlements and was upgraded by the inhabitants. This upgrade would have damaged and destroyed the original road. The original road is thus not in a pristine condition and all historical associations have been destroyed.

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