

**PROPOSED CONSTRUCTION OF OFF TAKE 1B
POTABLE WATER PIPELINE AS PART OF THE
LOWER THUKELA BULK WATER SUPPLY AT SANS
SOUKIS, ILEMBE DISTRICT MUNICIPALITY, KZN**

FOR

DATE: TRIPLO4 SUSTAINABLE SOLUTIONS

22 January 2015

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INTRODUCTION

“The study site is located approximately 65km to the North of Tongaat, turning inland along the P110 towards Sans Soucis. The proposed project, Off Take 1B, falls within the KwaDukuza Local Municipality and iLembe District Municipality

The proposed construction for Off Take 1B forms part of the Lower Thukela Bulk Water Supply Scheme which is a project of the iLembe District Municipality and co-funded by the Department of Water Affairs. The construction of Off Take 1B is part of the sections of the potable water pipeline that forms part of the broader Bulk Water Supply Scheme in the lower Thukela Region. The proposed pipeline is located immediately outside the road reserve and is approximately 3km in length with an outside diameter of approximately 400 to 450mm. The proposed Off-Take 1b bulk water pipeline feeds into the reservoirs of Sans Soucis as the project makes provision for Bulk Supply of Potable water to communities that currently do not have access to reticulated potable water in the Lower Thukela Region” (Triplo4 BID 2013).

Figures 1 – 3 show the location of the proposed development.

Umlando has undertaken a desktop study of the pipeline route, and this will be followed by a field survey in late January 2014.

FIG. 1 GENERAL LOCATION OF THE STUDY AREA

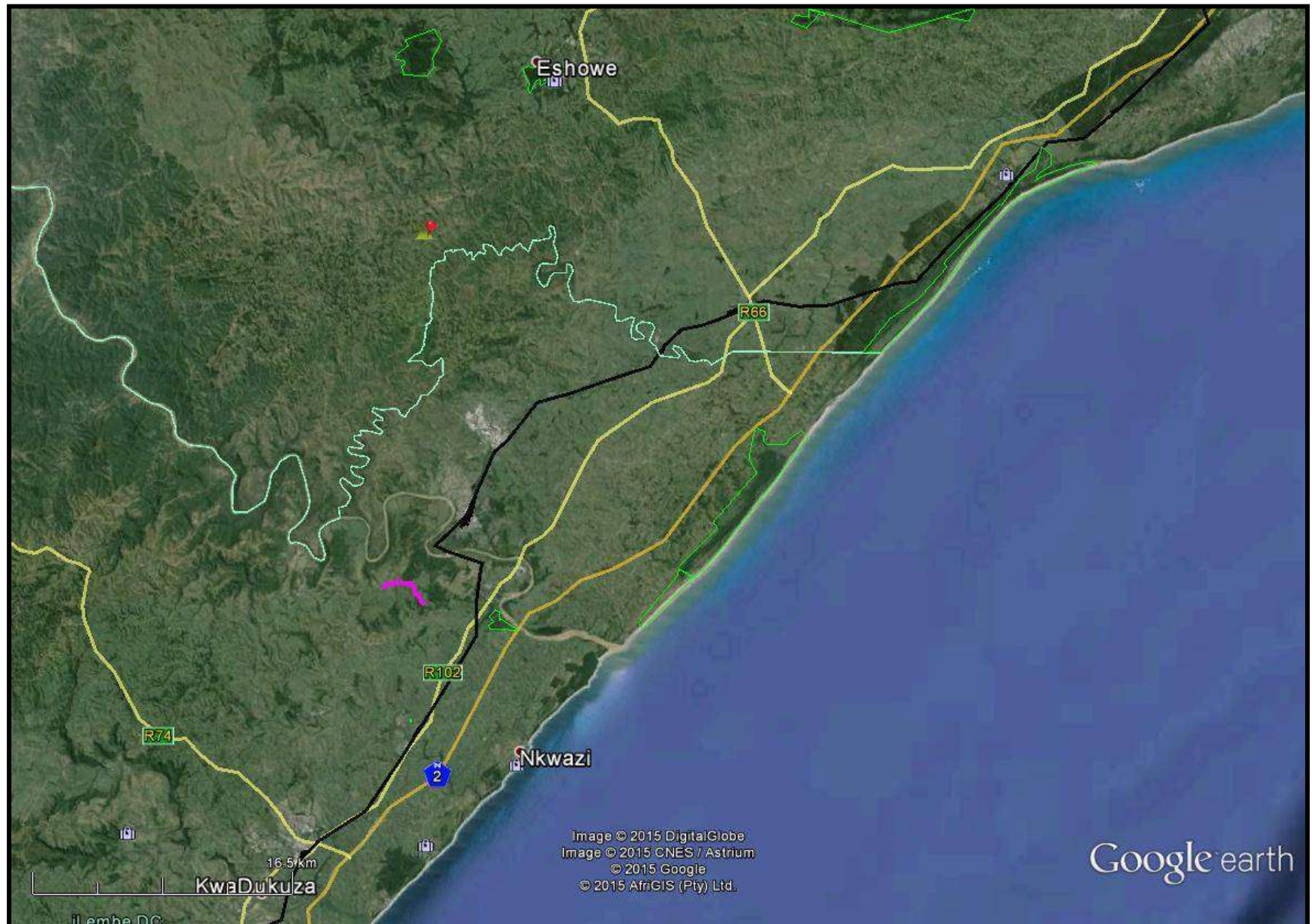


FIG. 2: AERIAL OVERVIEW OF THE STUDY AREA

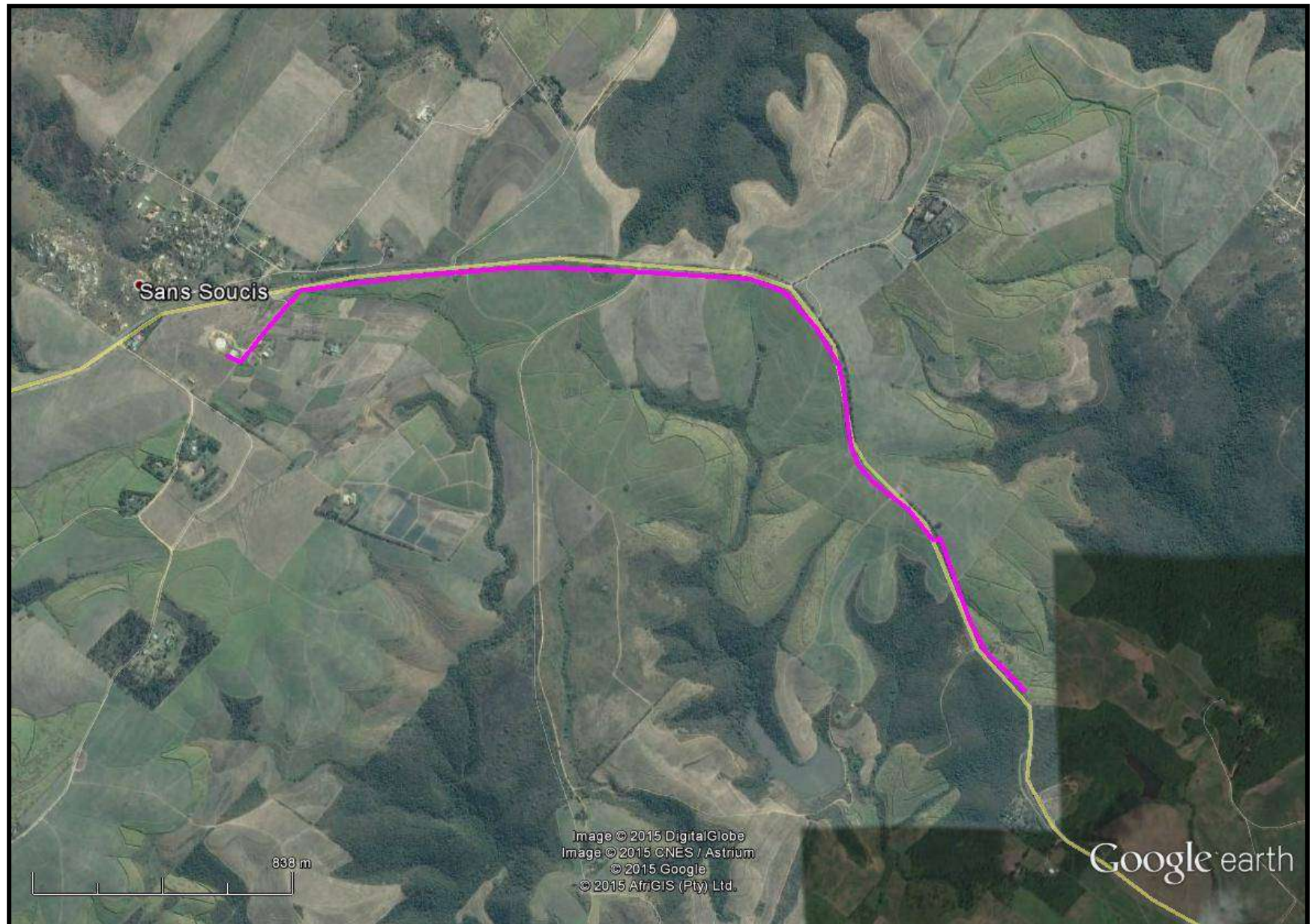
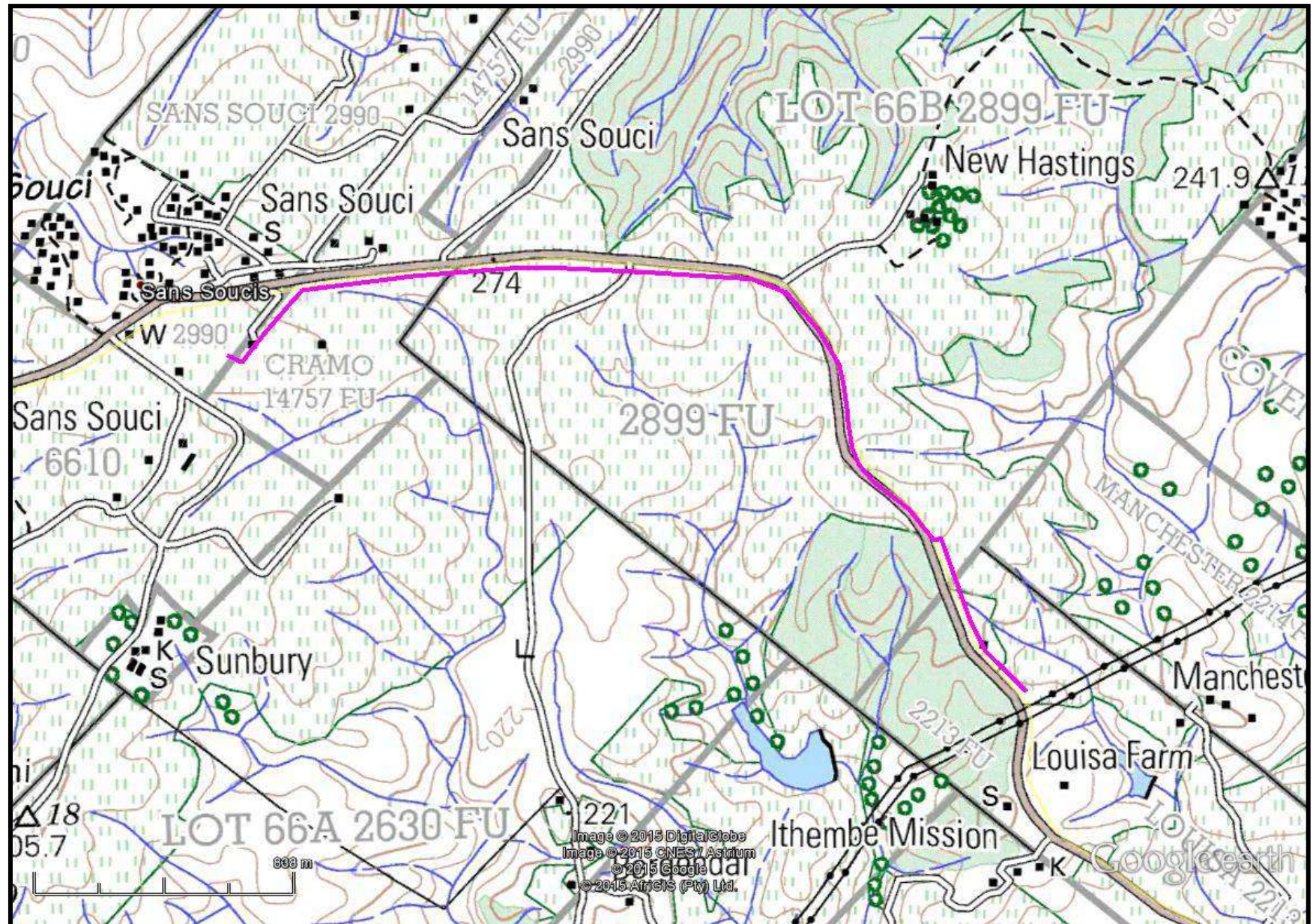


FIG. 3: TOPOGRAPHICAL MAP OF THE STUDY AREA



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. These 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 in the general area (fig. 4). These sites include all types of Stone Age and Iron Age sites. No sites occur in the study area. No national monuments, battlefields, or historical cemeteries are known to occur in the study area. Archaeological sites that could occur in the study area are probably very disturbed and are of low significance, and thus would not require further mitigation. The area of the reservoir could be an exception.

The Surveyor General maps indicate the land was officially surveyed (fig. 5) in 1876, however it was presumably occupied earlier. The map for Louisa 2213

does not indicate any buildings (fig. 6). The adjacent early land parcels of Sans Souci are currently not available on the Surveyor Generals web page.

The 1937 aerial photographs indicates that there are seven built structures on or near the pipeline (fig. 7). These include farmhouses, farm buildings of various sizes, and two settlements. The human settlements could be that of farm labourers and appear to be in a traditional Zulu homestead design. They would thus contain human graves. The current pipeline route will not affect these various sites as they appear to be outside of the pipeline footprint.

The 1963 topographical map indicates that there are five heritage sites near the line. Two of these are buildings and three are settlements. Two of these settlements occur on the 1937 aerial photographs. There is a possibility that human remains will occur within these settlements; however they will probably not be affected by the line.

There are structures at a5 and b5, a7 and b3, and a6 and b4 that occur in 2006 aerial photographs. A field survey will determine the extent of these sites in relation to the pipeline footprint. The structures at b1 have already been demolished by some current development.

The location of the desktop sites are given in Tables 1 and 2.

FIG. 4: LOCATION OF KNOWN HERITAGE SITES NEAR THE STUDY AREA

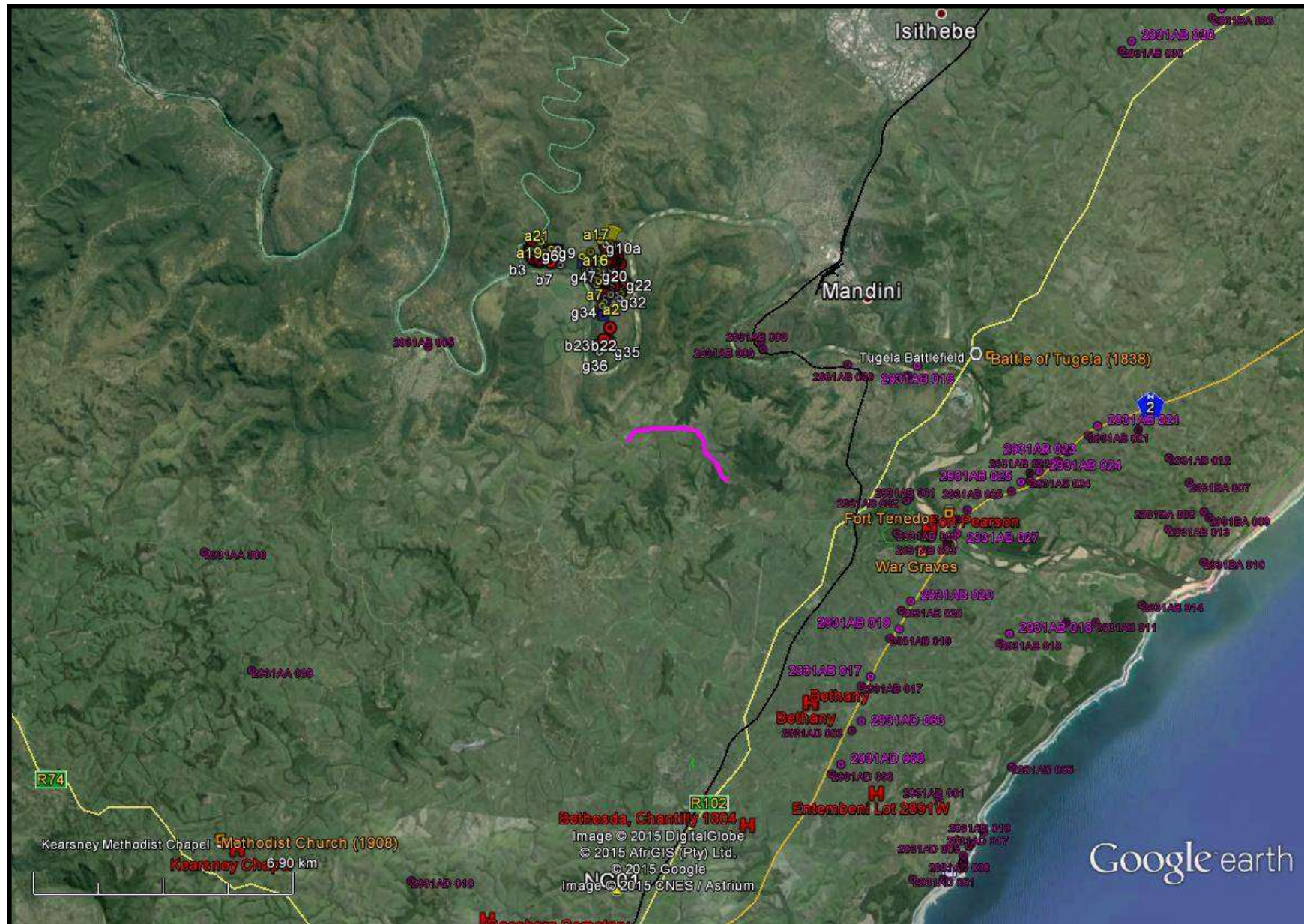


FIG. 6: SURVEYOR GENERAL DIAGRAM 1860

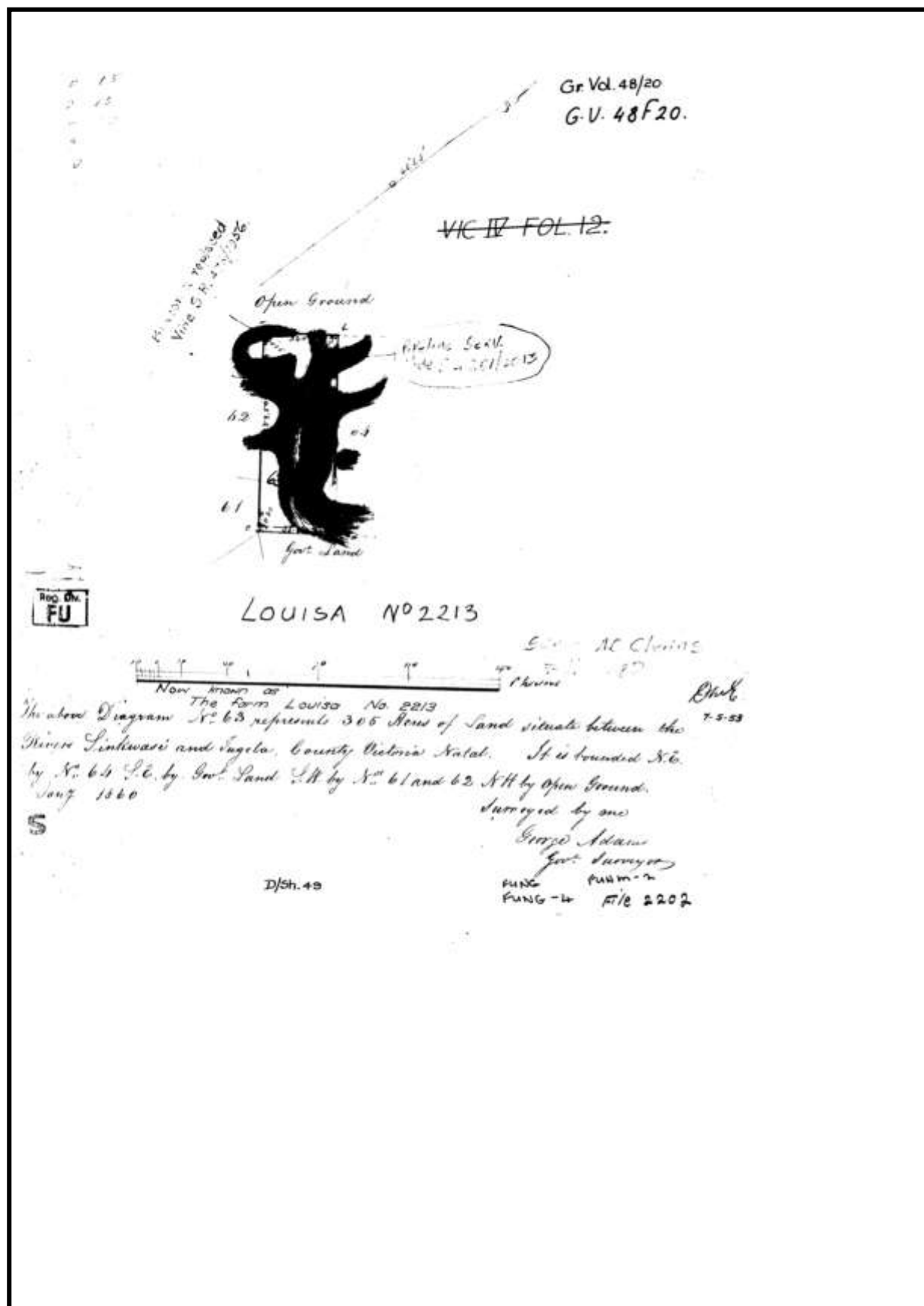


FIG. 7: STUDY AREA IN 1937



FIG. 7: STUDY AREA IN 1963

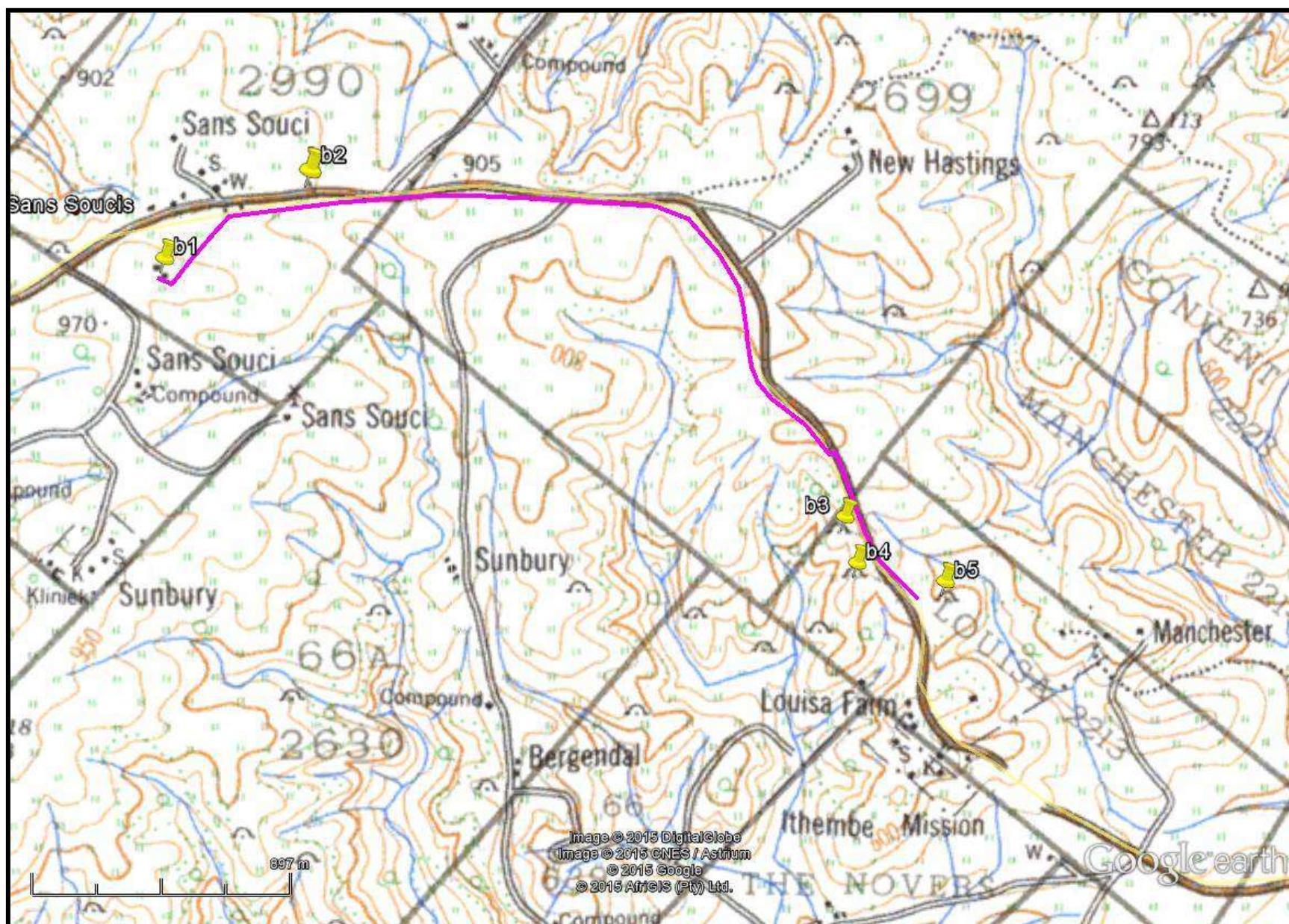


TABLE 1: LOCATION OF HERITAGE SITES IN 1937

NAME	LATITUDE	LONGITUDE	DESCRIPTION	Exists in 2006
a1	-29.187665811	31.351733503	farmhouse	Yes
a2	-29.188150473	31.350622575	structure	No
a3	-29.192112019	31.366912084	rectangular feature	Yes
a4	-29.193951496	31.369414906	structure	No
a5	-29.198853260	31.373092833	settlement	Yes
a6	-29.199445705	31.371427634	settlement	Yes
a7	-29.197460902	31.371167768	settlement	No

TABLE 2: LOCATION OF HERITAGE SITES IN 1963

NAME	LATITUDE	LONGITUDE	DESCRIPTION	Exists in 2006
b1	-29.190005647	31.346741915	2 structures	No
b2	-29.187286742	31.351859295	farmhouse	Yes
b3	-29.198075180	31.371230316	Settlement	No
b4	-29.199564747	31.371711574	Settlement	Yes
b5	-29.200152025	31.374953630	Settlement	No

PALAEONTOLOGICAL IMPACT ASSESSMENT

The area is of low paleontological significance however it still requires a palaeontological desktop assessment. As with other pipelines in the area, some sampling may be required if fresh bedrock is exposed.

It is highly unlikely that any fossils will be found that would stop the project.

FIELD SURVEY

To be undertaken in late January 2015

CONCLUSION

A desktop heritage survey was undertaken for the Offtake 1B pipeline. Several heritage sites were noted to have occurred near the proposed pipeline footprint. These sites include built structures and human settlements. The area was also noted for having low palaeontological significance, and requiring at least a desktop study. The human settlements probably have human graves, however these will be outside of the footprint.

A field survey will determine the extent of the buildings and settlements in relation to the pipeline footprint. The field survey will also determine if archaeological and other heritage sites occur within or near the footprint.

It is highly unlikely that any archaeological or palaeontological site will occur within the footprint, or nearby, to warrant a red flag. The area has been severely disturbed by road works and unlikely to leave significant sites in tact. If any sensitive areas do exist within the footprint, then the line can be altered accordingly.