

**HERITAGE SURVEY OF THE BEEMA BAMBOO TO
ENERGY PROJECT, ILEMBE DISTRICT
MUNICIPALITY, KWAZULU-NATAL**

FOR TRIPOL4

DATE: 31 OCTOBER 2013

By Gavin Anderson

**Umlando: Archaeological Surveys and Heritage
Management**

PO Box 102532, Meerensee, 3901

Phone/fax: 035-7531785 Fax: 0865445631

Cell: 0836585362



TABLE OF CONTENT

INTRODUCTION	4
• KWAZULU-NATAL HERITAGE ACT NO. 4 OF 2008	10
METHOD	12
Defining significance.....	13
CONSTRAINTS WITH THE STUDY	15
RESULTS	16
DESKTOP STUDY	16
FIELD SURVEY.....	25
BAB01	28
BAB02	29
BAB03	30
BAB04	32
BAB0	32
BAB05 and 5A	33
BAB06	34
BAB07	35
BAB08	36
BAB09	37
BAB010	38
BAB011	39
BAB012	40
BAB013	42
BAB014	43
BAB015	44
BAB016	45
BAB017	46
BAB018	47
BAB019	48
BAB020	49
BAB021	50
BAB022	51
BAB023	52
BAB024	53
BAB025	54
BAB026	55
B1	56
POTTERY.....	57
GENERAL COMMENTS	58
PALAEONTOLOGICAL DESKTOP STUDY	58
MANAGEMENT PLAN	58
CONCLUSION.....	61
REFERENCES	61
APPENDIX A	62
PALAEONTOLOGICAL DESKTOP STUDY	62
APPENDIX B	74
SITE RECORD FORMS	74

TABLE OF FIGURES & TABLES

FIG. 1 GENERAL LOCATION OF THE BEEMA BAMBOO PROJECT	6
FIG. 2: AERIAL OVERVIEW OF THE BEEMA BAMBOO PROJECT.....	7
FIG. 3: TOPOGRAPHICAL MAP OF THE BEEMA BAMBOO PROJECT	8
FIG. 4: GENRRAL SITE VIEWS OF THE BEEMA BAMBOO PROJECT	9

FIG. 5: LOCATION OF KNOWN HERITAGE SITES IN THE GENERAL AREA 17

TABLE 1: LOCATION OF HUMAN SETTLEMENTS IN 1937 18

FIG. 6A: LOCATION OF SETTLEMENTS IN THE STUDY AREA IN 1937 19

FIG. 6B: CLOSE UP OF 1937 AERIAL PHOTOGRAPHY INDICATING SETTLEMENTS..... 20

TABLE 2: LOCATION OF HUMAN SETTLEMENTS IN 1963 21

TABLE 3: LOCATION OF HUMAN SETTLEMENTS FROM 1963 TO 2006 22

FIG. 7: LOCATION OF SETTLEMENTS IN 1963 23

FIG. 8: LOCATION OF SETTLEMENTS IN 2006 24

FIG. 9: LOCATION OF RECORDED SITES DURING THE FIELD SURVEY 26

TABLE 4: LOCATION OF RECORDED SITES..... 27

FIG. 10: GRAVES AT BAB01 28

FIG. 11: GRAVES AT BAB02 29

FIG. 12: SETTLEMENT PATTERN AT G26 30

FIG. 13: GRAVES AT BAB03 31

FIG. 14: GRAVES AT BAB04 32

FIG. 15: GRAVES AT BAB05A 33

FIG. 16: GRAVES AT BAB06 34

FIG. 17: GRAVES AT BAB07 35

FIG. 18: GRAVES AT BAB08 36

FIG. 19: GRAVE AT BAB09 37

FIG. 20: GRAVE AT BAB10 38

FIG. 21: GRAVES AT BAB011 39

FIG. 22: WALK PATHS NEAR BAB012 40

FIG. 23: GRAVES AT BAB012 41

FIG. 24: GRAVES AT BAB013 42

FIG. 25: POSSIBLE GRAVE AT BAB014 43

FIG. 26: GRAVES AT BAB015 44

FIG. 27: GRAVES AT BAB016 45

FIG. 28: GRAVES AT BAB017 46

FIG. 29: EXAMPLES OF STONE TOOLS IN THE STUDY AREA 47

FIG. 30: GRAVES AT BAB019 48

FIG. 31: GRAVES AT BAB020 49

FIG. 32: GRAVES AT BAB021 50

FIG. 33: GRAVES AT BAB022 51

FIG. 34: POSSIBLE GRAVE AT BAB023 52

FIG. 35: GRAVE AND POSSIBLE GRAVE AT BAB024 53

FIG. 36: GRAVES AT BAB025 54

FIG. 37: GRAVE AT BAB025 55

FIG. 38: RECTANGULAR HOUSE FLOOR AT B1 56

FIG. 39: EXAMPLE OF POTTERY SHERDS IN THE STUDY AREA 57

INTRODUCTION

“The project proposes the following three main components:

- Tissue Culture Facility: To be established at Dube Trade Port where existing facilities with the required services (water and electricity) can be converted / utilised with minimal effort and costs.
- Bamboo Plantation: Approximately 500 hectares of plantation to be established from the plants produced at the Tissue Culture Facility at the most suitable location or locations (site 1, 2 and 3 as per Section 3.2 below) for harvesting within two years and annually thereafter. Approximately 30,000m³ of water storage capacity will be required to ensure adequate irrigation via abstraction of water from the Tugela River.
- Power Plant: 3,6MW Biomass Power Plant to be established within Isithebe Industrial Park within Mandeni with provision of Energy to Eskom Power Station within the Business Park.

The proposed plantation site(s) are situated approximately 85km north of Durban within the Kwadukuza and Mandeni Local Municipalities, which is located within the Ilembe District Municipality. The proposed sites are situated to the north-west of Mandeni adjacent to the Tugela River

Mr Clayton Cook completed an ecological survey scan on 03 August 2013. The preliminary scan survey indicated that:

- “Site 1 and 2 are situated within Eastern Valley Bushveld (SVs 6) and site 3 is situated within the Kwazulu-Natal Coastal Belt (CB 3) vegetation unit (Mucina & Rutherford 2006);
- The Eastern Valley Bush currently has the conservation status of being Least Threatened;
- The proposed sites (1 and 2) are situated around rural homesteads and agricultural areas and the majority of natural vegetation consisting of Eastern Valley Bushveld (SVs6) has been transformed;

□ Kwazulu-Natal Coastal Belt (CB 3) is an Endangered vegetation unit with only a small part statutorily conserved in Ngoye, Mbumazi and Vernon Crookes Nature Reserves. The vegetation on the site has been heavily degraded due to continual anthropogenic activities including wood harvesting, collection of medicinal plants, frequent fires, overgrazing by cattle and goats” (Tripol4 2013).

Umlando was contracted to undertake the HIA for this project. The site locations and general views are illustrated in Figures 1 – 4.

FIG. 1 GENERAL LOCATION OF THE BEEMA BAMBOO PROJECT

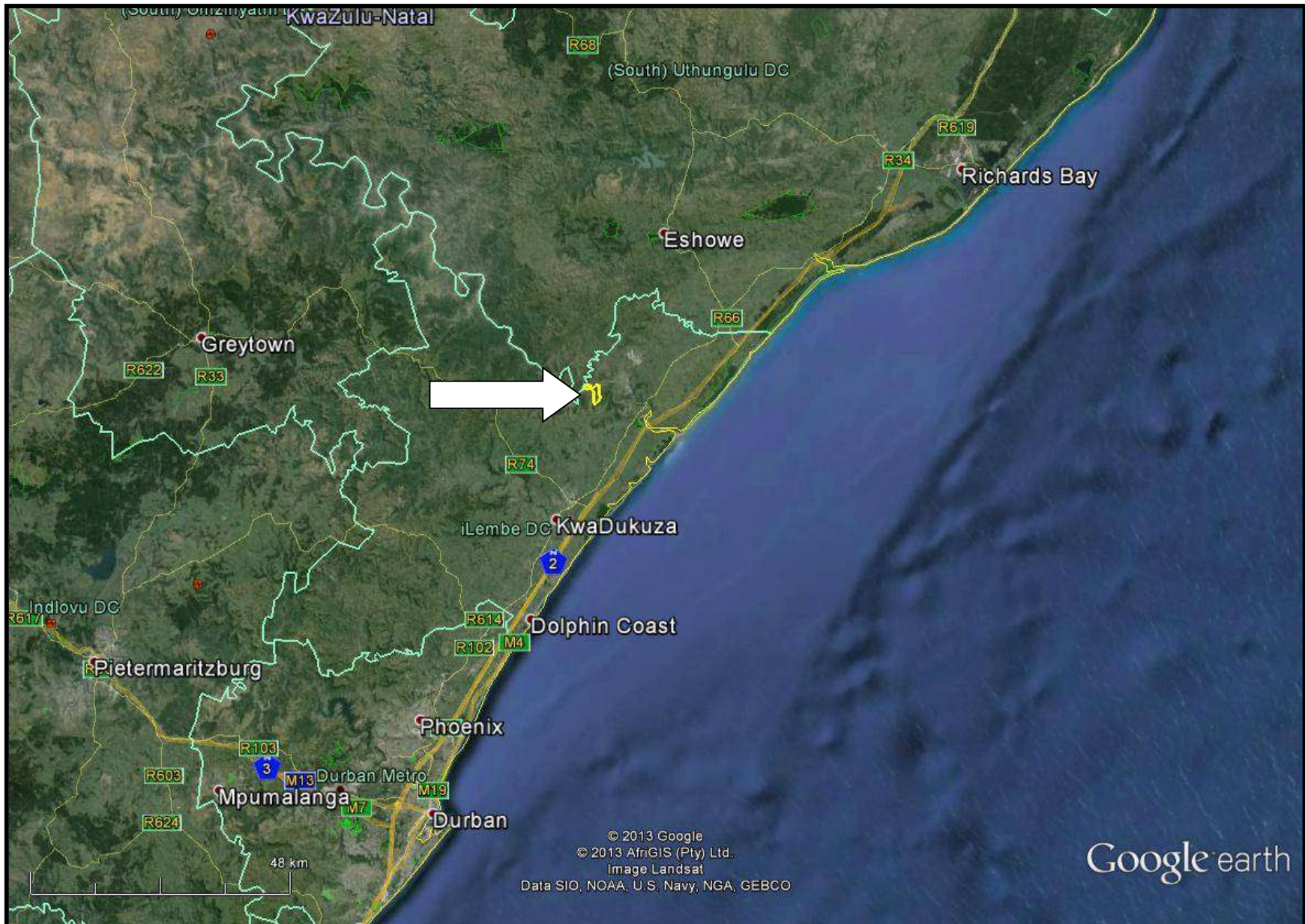


FIG. 2: AERIAL OVERVIEW OF THE BEEMA BAMBOO PROJECT



FIG. 3: TOPOGRAPHICAL MAP OF THE BEEMA BAMBOO PROJECT

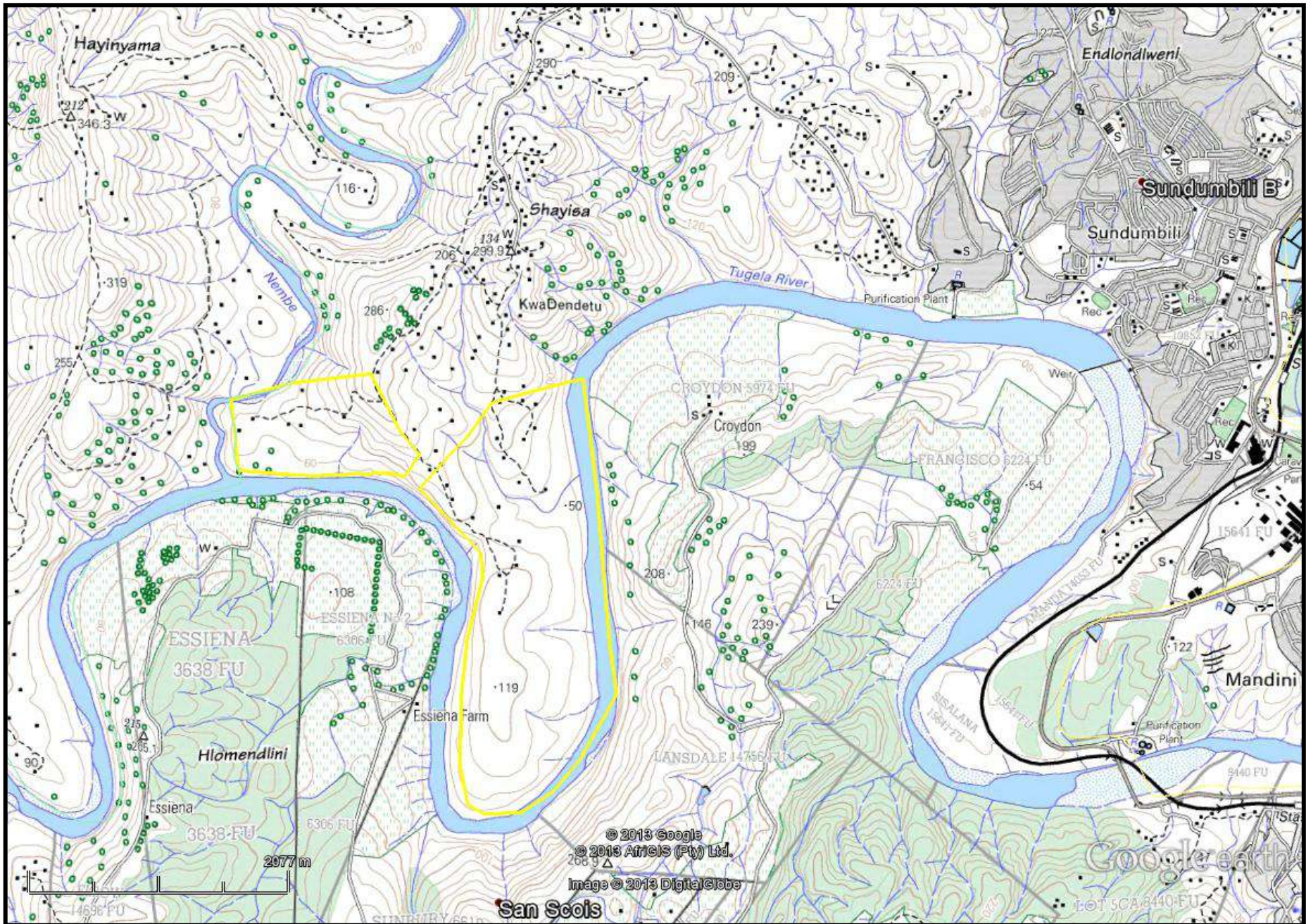
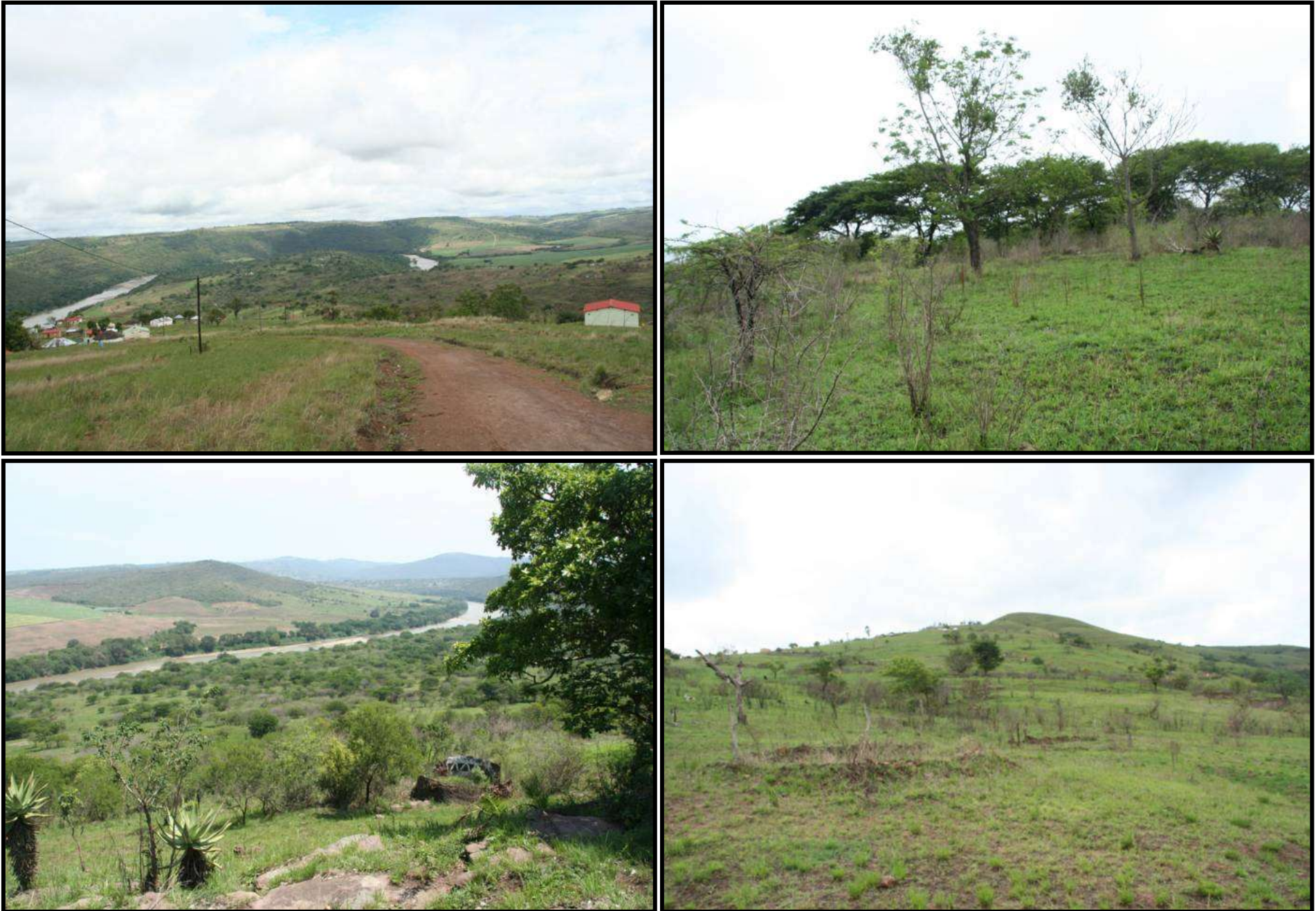


FIG. 4: GENRRERAL SITE VIEWS OF THE BEEMA BAMBOO PROJECT



• **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.

CONSTRAINTS WITH THE STUDY

There are two main constraints to the HIA: poor preservation and dense vegetation.

During the field survey it soon became apparent that those sites noted on the 1937 aerial photographs had mostly disappeared. That is the wattle and daub structures had decayed, the house floors had disintegrated and/or ploughed over, and other structures such as graves, had sunken below the surface. The sites identified in the 1963 topographical map were better preserved in that house foundations were still visible. However, the graves that would be associated with these types of settlements had mostly sunken into the ground and had been covered up with soil. This means that subsurface features, such as human graves could still exist, however they are not possible to record. This becomes a bigger issue for the more recent sites where most have human remains and a

few had no human remains. Those sites without human remains tend to have dense vegetation nearby. To counter this one can note the location of the settlements and mark them as having general sensitivity.

The second limitation was areas of dense vegetation resulting in poor archaeological visibility. These areas are minimal in the upper section and tend to be clustered occurrences. However, in the lower section of the development there were large areas of Bushveld thickets that made survey impossible. The dense vegetation becomes an issue when they are situated near settlements and could be 'hiding' graves.

RESULTS

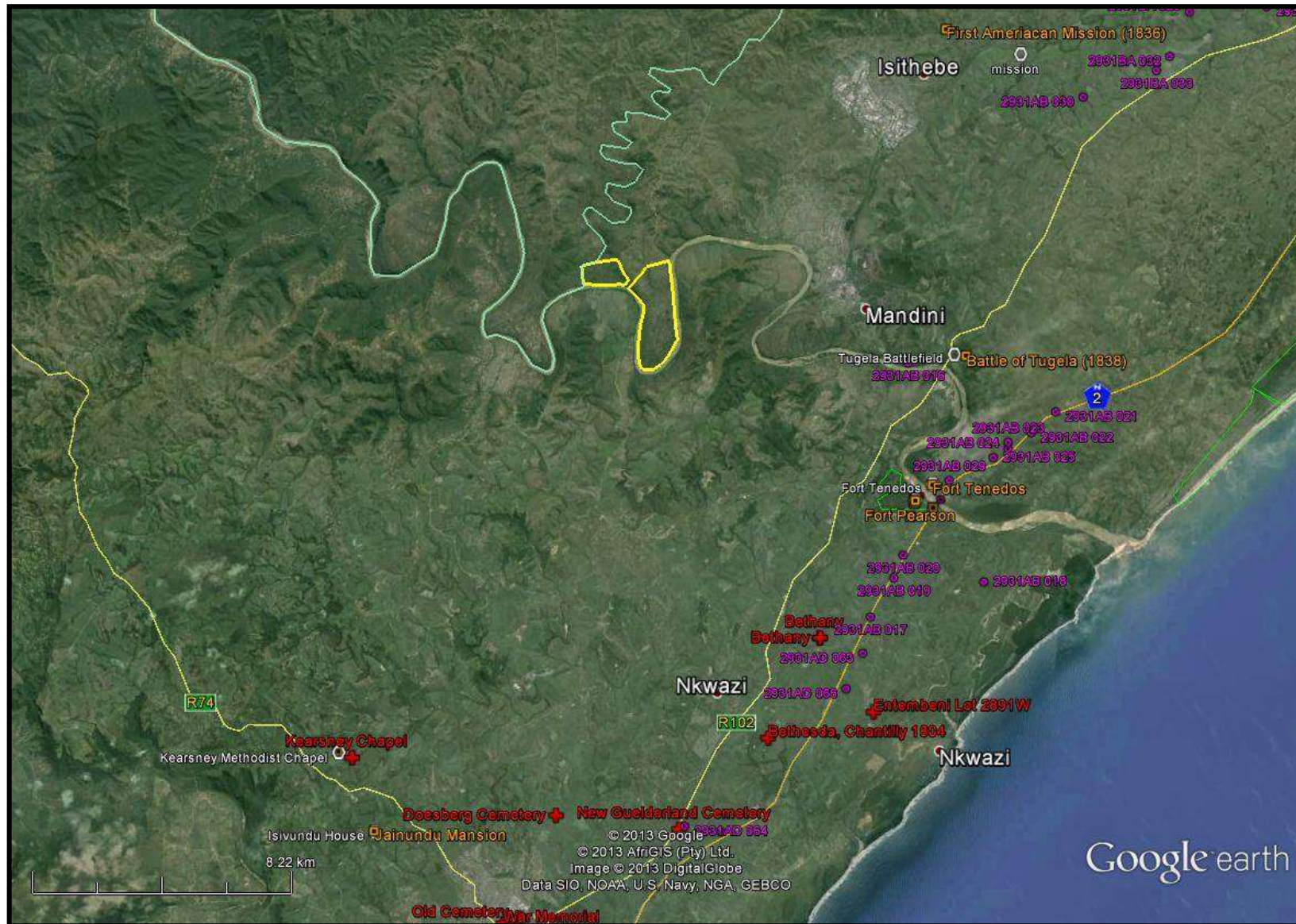
DESKTOP STUDY

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. 5). 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. There are several cemeteries and national/provincial monuments outside of the study area.

The use of historical maps allows one to locate areas that should have human graves, as these areas would still bury the dead in a traditional manner, as opposed to a more formal cemetery.

FIG. 5: LOCATION OF KNOWN HERITAGE ISTES IN THE GENERAL AREA



The 1937 aerial photographs indicate that there are 27 settlements within the study area (fig. 6a). These have the prefix of 'B'. Either obvious settlements and/or agricultural fields (fig. 6b) note these settlements - note the circular settlements and fields at sites b8 – 9. The locations of these settlements are given in Table 1.

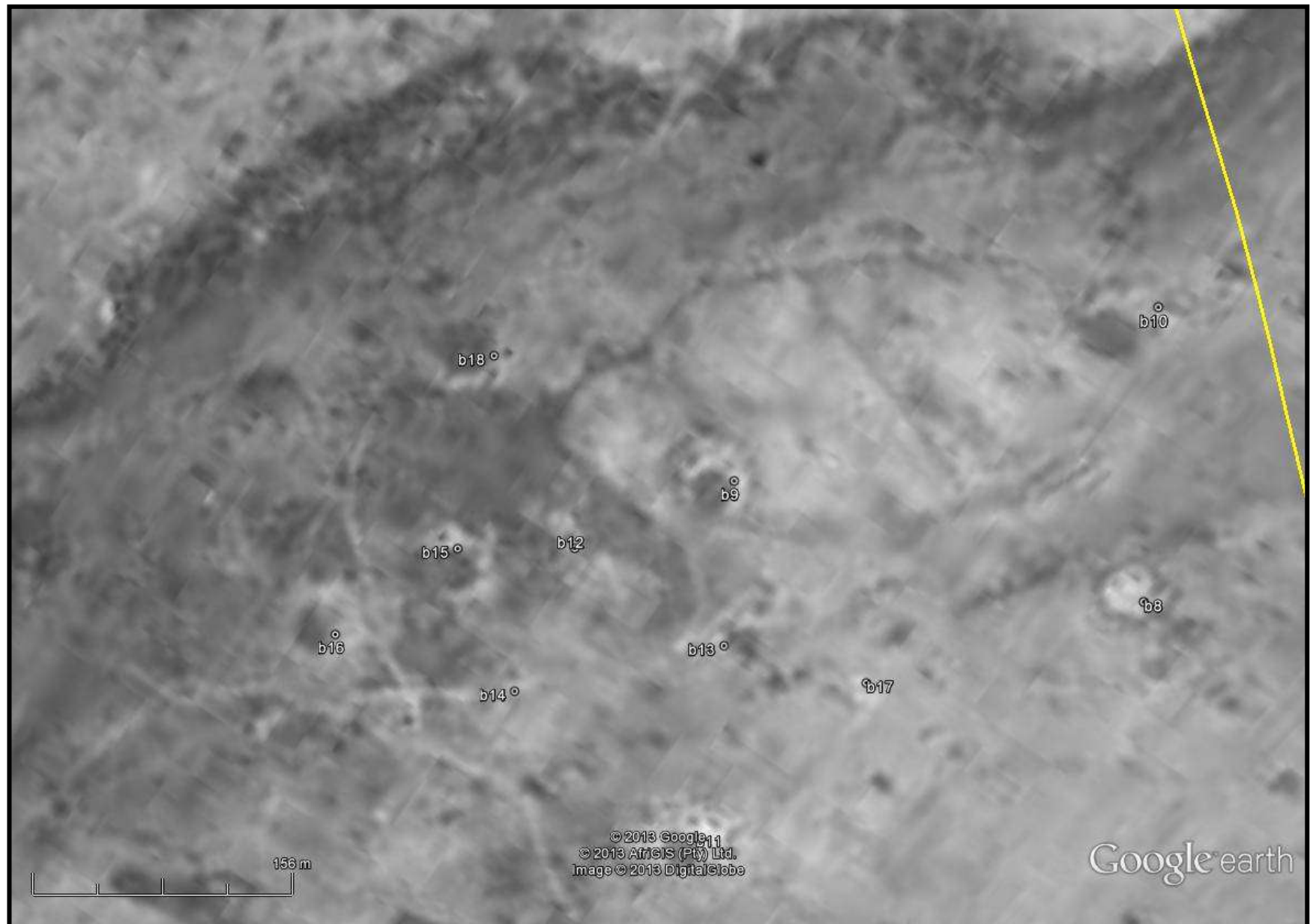
TABLE 1: LOCATION OF HUMAN SETTLEMENTS IN 1937

NAME	LATITUDE	LONGITUDE
b01	-29.146981594	31.321201082
b02	-29.147443932	31.322055144
b03	-29.147747654	31.323259293
b04	-29.147227610	31.323145257
b05	-29.144435545	31.320755248
b06	-29.144386065	31.321425003
b07	-29.147848880	31.326145235
b08	-29.144366191	31.342787046
b09	-29.146399943	31.342169951
b10	-29.144371974	31.341131573
b11	-29.146531652	31.344329141
b12	-29.147198876	31.342591593
b13	-29.146420611	31.343140044
b14	-29.147495487	31.343457098
b15	-29.147799721	31.342614624
b16	-29.148434604	31.343151960
b17	-29.145690561	31.343329655
b18	-29.147636003	31.341481028
b19	-29.148249054	31.345074417
b20	-29.153695451	31.345376973
b21	-29.154873169	31.345282497
b22a	-29.163497250	31.342346325
b22b	-29.154196060	31.340923832
b23	-29.166286804	31.340690811
b23	-29.153618847	31.341729991
b24	-29.166794387	31.342094949
b24	-29.153399176	31.343345324
b25	-29.151894161	31.343480022
b26	-29.154869969	31.341824138
b27	-29.155491812	31.341301639

FIG. 6A: LOCATION OF SETTLEMENTS IN THE STUDY AREA IN 1937



FIG. 6B: CLOSE UP OF 1937 AERIAL PHOTOGRAPHY INDICATING SETTLEMENTS



The 1963 topographical map indicates that there are 21 settlements in the study area (figure 7). Only two of these sites overlap with the 1937 settlements. This means that 25 of the sites from 1937 had been abandoned by 1963. The sites dating to 1963 have the prefix 'A' and their locations are summarised in Table 2.

TABLE 2: LOCATION OF HUMAN SETTLEMENTS IN 1963

NAME	LATITUDE	LONGITUDE
A1	-29.167086982	31.339264724
A2	-29.158280688	31.340108669
A3	-29.156465337	31.339325991
A4	-29.155633098	31.340225326
A5	-29.154904149	31.342369195
A6	-29.155371898	31.345295733
A7	-29.152509085	31.339207387
A8	-29.151702721	31.337614345
A9	-29.150102994	31.338932059
A10	-29.149865945	31.335478120
A11	-29.147730303	31.336495087
A12	-29.147603464	31.343732848
A13	-29.146554523	31.341355363
A14	-29.143707070	31.342245390
A15	-29.145670785	31.337028530
A16	-29.146728529	31.334657120
A17	-29.142867896	31.339662786
A18	-29.145688798	31.322492193
A19	-29.144908178	31.326339535
A20	-29.144515363	31.322997110
A21	-29.143062199	31.323563167

The 2006 Google Earth maps indicated that there 51 recent settlements in the study area. A third of these settlements were still inhabited in 2006. None of the 2006 sites overlaps with the 1963 sites. Thus, all sites with the prefix of 'G' post-date 1963.

Table 3 summarised the locations of these sites while fig. 8 illustrates their locations.

TABLE 3: LOCATION OF HUMAN SETTLEMENTS FROM 1963 TO 2006

NAME	LATITUDE	LONGITUDE
G01	-29.145107270	31.320548070
G02	-29.148606572	31.325993976
G03	-29.148501468	31.326972560
G04	-29.148671244	31.328812819
G05	-29.145596079	31.324426133
G06	-29.145550160	31.323533456
G07	-29.146042545	31.319414441
G08	-29.144122067	31.322865277
G09	-29.145018295	31.328134399
G10a	-29.143889314	31.341035391
G11	-29.144595152	31.342542793
G12	-29.145012662	31.344759011
G13	-29.146637483	31.340765797
G14	-29.147190670	31.339013185
G15	-29.149875309	31.336157487
G16	-29.150437366	31.336317998
G17	-29.151100279	31.338584868
G18	-29.149580668	31.342630197
G19	-29.151368535	31.340850441
G19a	-29.151772996	31.340030003
G20	-29.150424128	31.339885841
G19	-29.148898839	31.343562240
G20	-29.150108997	31.344782466
G21	-29.151897297	31.346376338
G22	-29.152565392	31.346468776
G23	-29.153007062	31.346664545
G24	-29.152661748	31.346997881
G25	-29.152869877	31.346276376
G26	-29.152255793	31.338890385
G27	-29.151970553	31.337011754
G28	-29.153353696	31.338615068
G29	-29.152839119	31.337953166
G30	-29.156406511	31.341116411
G31	-29.155638298	31.342433087
G32	-29.156585591	31.344930908
G33	-29.157470098	31.340702085
G34	-29.158995866	31.341060920
G35	-29.168404656	31.343294943
G36	-29.169375937	31.339375363
G40	-29.155762314	31.343799608
G41	-29.153972417	31.342477388
G42	-29.155030170	31.341947932
G37	-29.168555713	31.338807653
G43	-29.147855595	31.341515780
G44	-29.150836597	31.337175016
G45	-29.149922686	31.337372331
G46	-29.149808441	31.336698084
G47	-29.148373533	31.336198626
G48	-29.146439407	31.343070268
G49	-29.145536278	31.343604426
G50	-29.144011284	31.344050081
G51	-29.144052433	31.342972981

FIG. 7: LOCATION OF SETTLEMENTS IN 1963

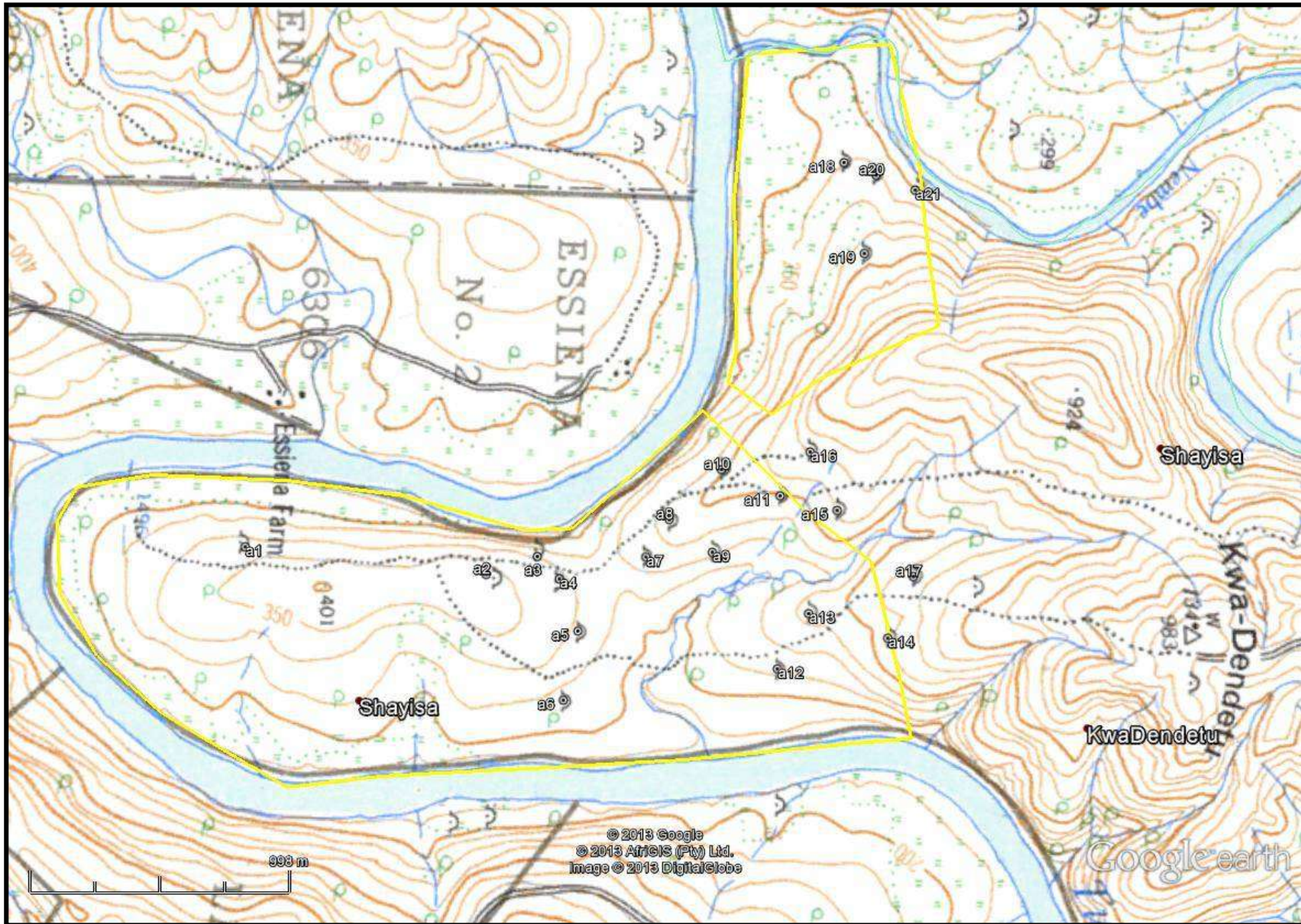


FIG. 8: LOCATION OF SETTLEMENTS IN 2006



FIELD SURVEY

The field survey consisted of visiting all areas demarcated from the desktop study. By doing this, I undertook several transects across the landscape and thus covered the area for archaeological sites. The field survey located 28 sites: 26 were human settlements identified from the maps, while two were occurrences of archaeological artefacts (fig. 9). The locations are summarised in Table 4.

All sites with the prefixes 'A' and 'G' are built structures younger than 60 years in age and are thus not directly protected by the KZNHA. However, any human remains at these sites would be protected. Those sites with built structures (including house foundations) and a prefix of 'B' are older than 60 years and are technically protected by the KZNHA. The human remain from these sites are automatically protected by the KZNHA. Only three sites (BAB06a, G42 and B26) overlap each other, and the graves of BAB06a are associated with G42. All 1937 sites have disappeared through natural erosion and/or human resettlement and ploughing activity. Only one 'A' site had observable human remains. Most of the 'G' sites have human remains. This means that human remains at the 'G' sites are subsurface. This suggests that most of the human remains recorded in the survey post-date 1963, and should still have living descendants able to claim these remains.

Sites recorded during the field survey have the prefix 'BAB'. If the 'BAB' sites overlap with sites from the desktop, then they are noted in the text below. All sites with human remains require a standard method of demarcation. This entails a surrounding fence 5m from the grave and a 20m buffer surrounding that fence. All demarcations need to be clearly visible.

The field survey did not include areas where the gradient was more than 30 degrees as I was informed that these areas would not be farmed.

FIG. 9: LOCATION OF RECORDED SITES DURING THE FIELD SURVEY

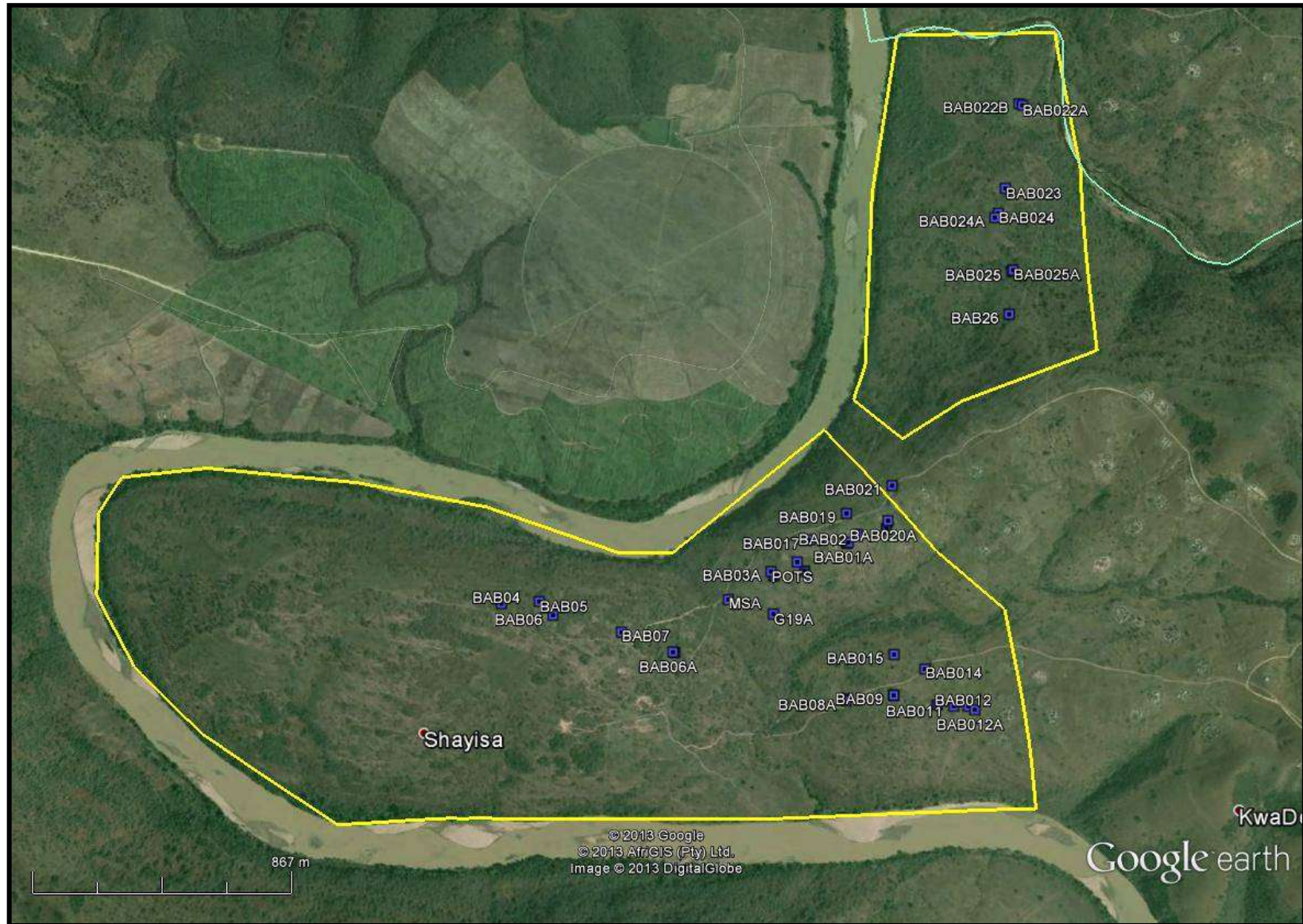


TABLE 4: LOCATION OF RECORDED SITES

NAME	LATITUDE	LONGITUDE	DESCRIPTION	ASSOCIATED SETTLEMENT FROM THE DESKTOP STUDY
BAB01	-29.149627984	31.337170014	Graves start	G45, G46
BAB01A	-29.149581967	31.337120980	Graves end	G45, G46
BAB02	-29.149321960	31.336797019	Grave(s)	G45
BAB03	-29.151875004	31.338599967	Grave(s) start	G26
BAB03A	-29.151979024	31.338445991	Grave(s) end	G26
BAB04	-29.160610959	31.340452032	Grave(s)	
BAB05	-29.159390973	31.340260003	Grave(s) start	G34
BAB05A	-29.158910019	31.340725031	Grave(s) end	G34
BAB06A	-29.154931968	31.341744019	Grave(s) start	B26, G24
BAB06B	-29.154871032	31.341757011	Grave(s) end	B26, G24
BAB07	-29.156657970	31.341147982	Grave(s)	G30
BAB08A	-29.149157004	31.343057966	Grave(s) start	G18, G19
BAB08B	-29.149189023	31.342974985	Grave(s) end	G18, G19
BAB09	-29.147649016	31.342669968	Grave(s)	B15
BAB010	-29.146226021	31.342885969	Grave(s)	B13, G45
BAB011	-29.145696033	31.342867026	Grave(s)	
BAB012	-29.145241985	31.342816986	Grave(s) start	G12, G49, G50, G51
BAB012A	-29.145018021	31.342928968	Grave(s) end	G12, G49, G50, G51
BAB013	-29.14643	31.34114	Grave(s)	G13
BAB014	-29.146737987	31.341579985	Grave(s)	A13?
BAB015	-29.147751024	31.341150999	Grave(s)	B18, G43
BAB016	-29.150902033	31.338323029	Grave(s)	G17
BAB017	-29.150804970	31.337147970	Grave(s)	G44
BAB018	-29.153276039	31.339632031	MSA scatter	
BAB019	-29.149716999	31.336057987	Grave(s)	A16, G15
BAB020	-29.148398023	31.336499965	Grave(s) start	G47
BAB020A	-29.148377990	31.336194025	Grave(s) end	G47
BAB021	-29.148342032	31.334893992	Grave(s)	
BAB022A	-29.144996982	31.320281988	Grave(s) start	G1
BAB022B	-29.145109970	31.320236977	Grave(s) end	G1
BAB023	-29.145366959	31.323480019	Grave(s)	G6
BAB024	-29.145544991	31.324447962	Grave(s) start	G5
BAB024A	-29.145645993	31.324619958	Grave(s) end	G5
BAB025	-29.145004023	31.326607978	Grave(s) start	A19
BAB025A	-29.144965969	31.326557016	Grave(s) end	A19
BAB26	-29.145035036	31.328237001	Grave(s)	B9
POTS	-29.151163967	31.338008037	Pottery scatter	

To reduce repetitive descriptions of settlements in the text below, a settlement is defined as a cluster of houses encircling a main cattle byre. These entail 4 - 7 houses that may be circular or rectangular. Graves are normally in front of the byre, or behind the houses. Unless stated otherwise, the graves are of adults.

BAB01

BAB01 is related to either G45 or G46. The site consists of three graves. Two of the graves consist of an oval outline of rocks with a sand infill, while the one grave is plastered along the sides and the top (fig. 10). All graves are unmarked and in east-west orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 10: GRAVES AT BAB01



BAB02

BAB02 consists of six graves near a large *Acacia spp.* tree (fig. 11). The graves consist of stone cairns in an approximate east-north orientation. They appear to be recent. These graves are probably related to G45

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 11: GRAVES AT BAB02



BAB03

BAB03 is related to G26. G26 is an extensive settlement of at least twelve houses, surrounding a cattle byre (fig. 12). The entrance to the settlement is from southeast, or downhill. The 1937 site of A7 occurs nearby to the southeast; however, the artefacts on this site are clearly modern. BAB03 consists of seven graves located behind the settlement. The graves are in a northwest-southeast orientation and consist of an oval shape surrounded by stone with a sand infill (fig.13).

FIG. 12: SETTLEMENT PATTERN AT G26



Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 13: GRAVES AT BAB03



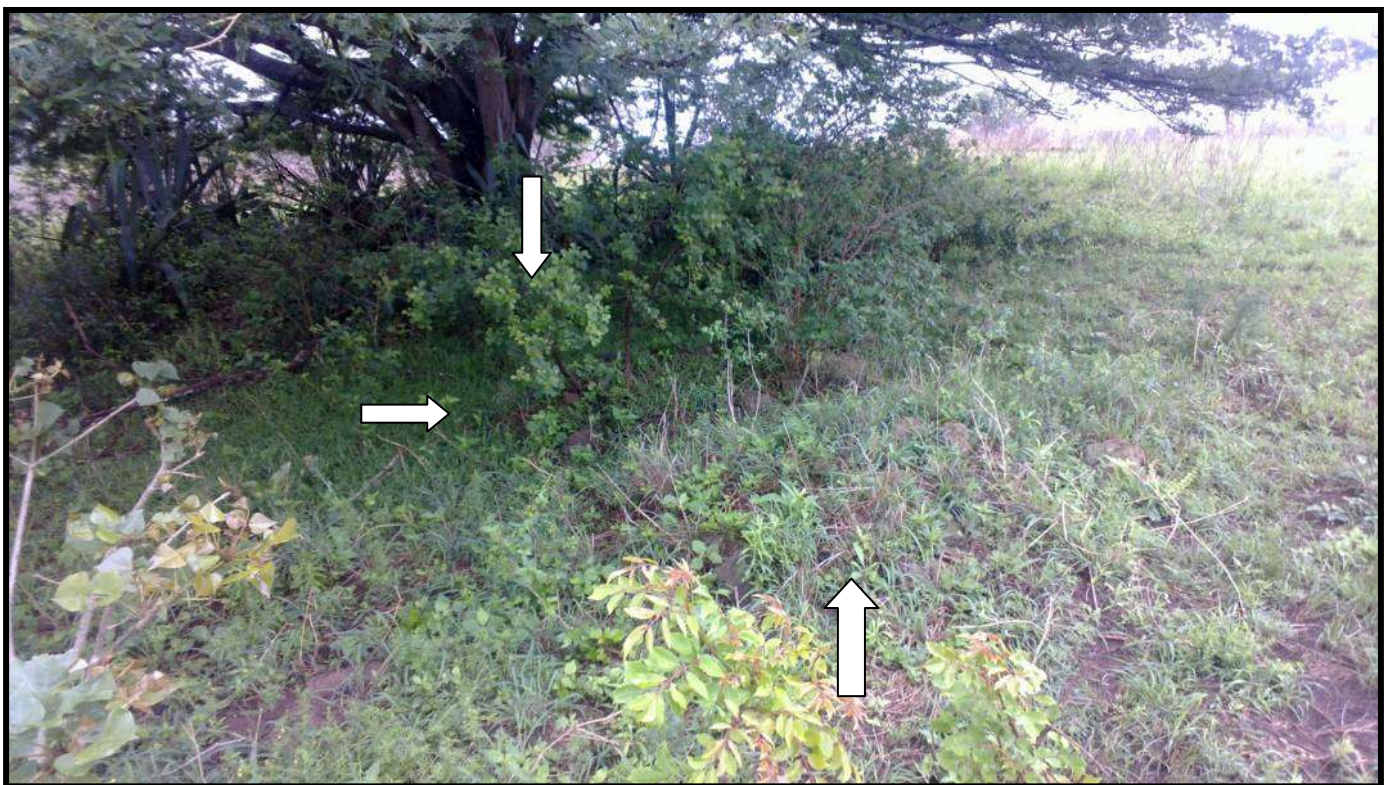
BAB04

BAB04 consists of three graves underneath a large *Acacia spp.* tree (fig. 14). There are no visible homesteads associated with these graves. The graves are stone cairns and on an east-west axis. The cairns appear to have sunken into the ground, suggesting that they may be significantly predate 2006.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated. The tree should be considered as part of the heritage site and thus included in the demarcation area.

FIG. 14: GRAVES AT BAB04



BAB05 and 5A

BAB05 is associated with a cleared area and faint hut floors ~60m southwest of G34. The site does not show up on Google Earth imagery (apart from the cleared area), and the hut floors are under low-lying bushes. The graves consist of oval outlined features. Two of the graves are packed with sand and rock infill, while one has a plaster cover over the top. These graves occur underneath an *Acacia spp.* Tree. BAB05A is directly associated with G34 and ~60m from BAB05. G34 consists of a settlement of nine circular houses surrounding a cattle byre. The entrance to the byre/settlement is to the southeast and downhill. The graves are located behind the main house. There are two graves both of which are stone cairns (fig. 15). The photograph for BAB05 was “blank” when reviewed

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 15: GRAVES AT BAB05A



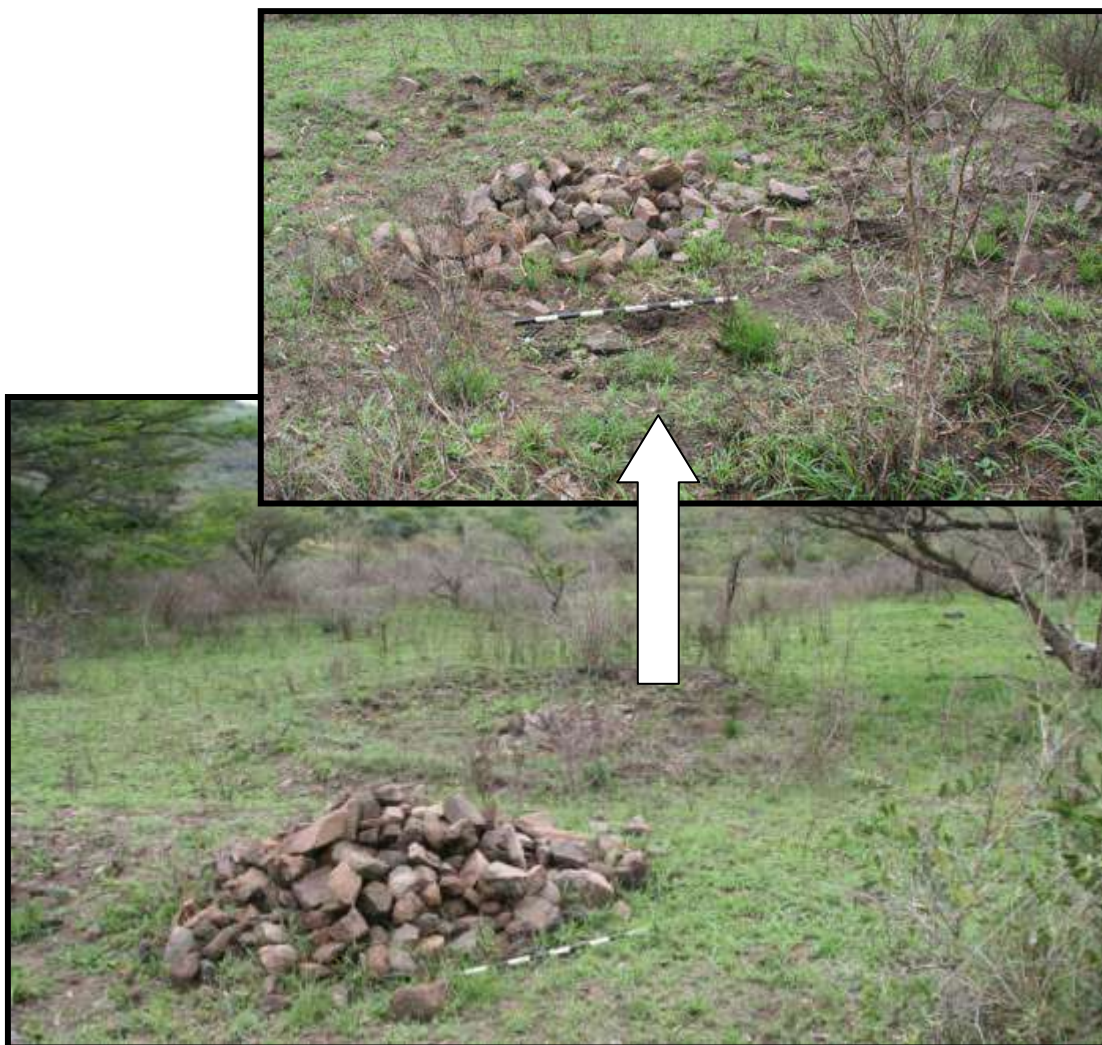
BAB06

BAB06 are two graves that are directly associated with B26 and G42. In all likelihood, the site dates to B26. The two graves are stone cairns each in the centre of the remains of a house. The graves occur in the western houses and are on a northeast-southwest orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 16: GRAVES AT BAB06



BAB07

BAB07 is related to G30. The settlement consists of seven round houses and one rectangular house, surrounding a cattle byre. The two graves are stone cairns covered with plaster (fig. 17). These graves are directly behind the rectangular house and in a northwest-southeast orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 17: GRAVES AT BAB07



BAB08

BAB08 may be related to G18 or G19. Both sites are standard sized settlements that date between 1963 and 2006, but probably closer to the former. There are four graves at the site. Three graves have been plastered around the sides and top, while one is a stone cairn (fig. 18). The graves are in a northeast-southwest orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 18: GRAVES AT BAB08



BAB09

BAB09 is probably related to B15. The settlement at B15 is poorly preserved with one house floor just visible. The grave consists of a stone cairn and a headstone (fig. 19). The grave appears to be placed at the edge of a sisal feature. The grave is on an east-west orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 19: GRAVE AT BAB09



BAB010

BAB010 is related to G48 that appears to have been built on top of B13. The site is a small settlement of three houses and no discernible cattle byre. The two graves consist of stone cairns (fig. 20). The graves appear to be recent, and thus not related to B13. The graves are on an east-west orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 20: GRAVE AT BAB010



BAB011

BAB011 is not directly related to any observable settlement. The site consists of three graves made out of stone cairns (fig. 21). The cairns are on an approximate east-west axis and do not appear to be recent.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 21: GRAVES AT BAB011



BAB012

BAB012 is not related to any specific settlement. The cemetery consists of 15 – 20 graves in an approximate southeast-northwest orientation. The impression is that it was a family cemetery for several of the settlements in the immediate area. These are probably the settlements of G12, G49, G50, and G51, as these are linked with walk paths (fig. 23). No graves were found at these other sites. Two graves have headstones (one dates to 2006). Most of the graves are stone cairns; however, two are outlined with rocks and plaster, while one is encased in plaster (fig. 22). The graves contain adult and juvenile remains.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 22: WALK PATHS NEAR BAB012



FIG. 23: GRAVES AT BAB012



BAB013

BAB013 is associated with G13. G13 is a small settlement of five houses. There are three graves and one possible grave behind, and uphill of the settlement. The graves are outlined with rocks and in-filled with sand and smaller stones (fig. 24). The graves face downhill and are on a northeast-southwest orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 24: GRAVES AT BAB013



BAB014

BAB014 is a single stone cairn that is probably a grave (fig. 25). The cairn is partially sunken suggesting it is relatively old. There are no settlements directly associated with the grave, although A13 occurs nearby. The site should be treated as if it is a grave. The grave is in an approximate northeast-southwest orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The grave needs to be clearly demarcated.

FIG. 25: POSSIBLE GRAVE AT BAB014



BAB015

BAB015 is associated with G43, although site B18 occurs nearby as well. G43 is a small settlement of four houses. There are two graves associated with this settlement. The graves are raised stone cairns in an approximate northeast-southwest orientation (fig. 26).

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 26: GRAVES AT BAB015



BAB016

BAB016 is not associated with any specific settlement; however, it is near G17. G17 is a poorly preserved settlement with no discernible features. There are two graves at the site. White plastered stones (fig. 27) surround both graves. The graves do not appear to be recent; however, they do appear to post-date 1963. The graves are on an approximate northeast-southwest orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 27: GRAVES AT BAB016



BAB017

BAB17 is associated with G44. G44 is a recent small settlement of four round houses and two rectangular houses. Both graves occur in the centre of the settlement above the cattle byre. One grave is a stacked stone cairn in front of the main house, while the second grave has a circle of stone covered by a pile of sand (fig. 28). The graves are in an approximate northeast-southwest orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 28: GRAVES AT BAB017



BAB018

BAB018 is a scatter of Middle Stone Age tools (fig. 29). The tools are made on quartzite and have been exposed by a recent track. These tools are probably scattered across the entire hill as isolated stone tools, including Late Stone Age tools, were noted during the survey. The tools would have been disturbed by natural run-off and agricultural activity and are thus in a secondary context. The entire hill can be considered as a stone age scatter. The tools are mostly standard flakes, with a few irregular cores.

Significance: The tools are of low significance

Mitigation: No further mitigation is required.

FIG. 29: EXAMPLES OF STONE TOOLS IN THE STUDY AREA



BAB019

BAB019 is associated with G15 or possibly A10. The settlement appears to be an older site as few house floors and other features are poorly preserved. There are two graves associated with this settlement. The graves are sunken stone cairns in a northeast-southwest orientation (fig. 30)

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 30: GRAVES AT BAB019



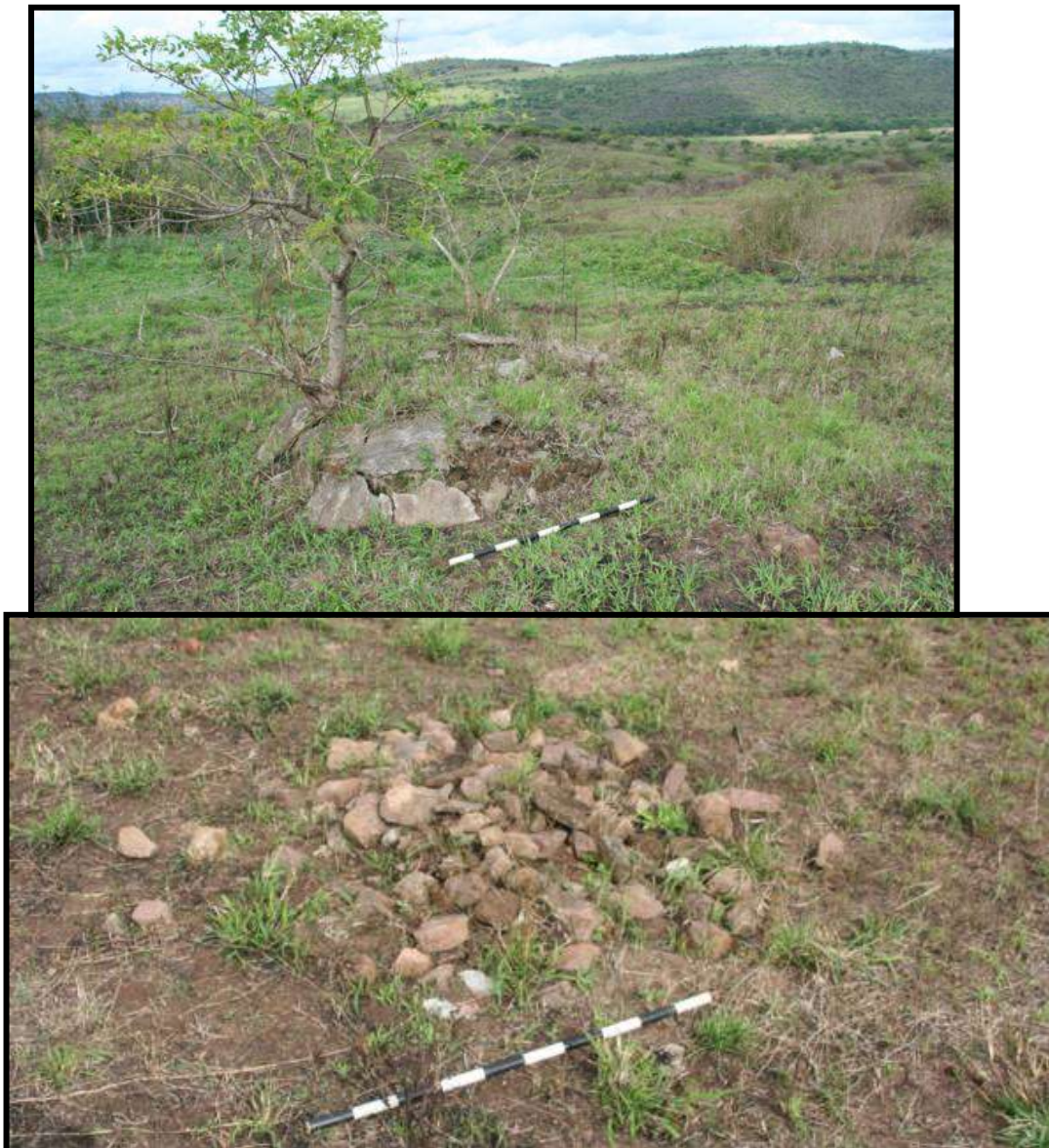
BAB020

BAB020 is associated with G47. G47 is a large settlement of eight houses. The houses are aligned in two rows and do not surround the cattle byre. The main grave occurs downhill, in front of the byre, while a possible grave occurs within a house. Both graves are stone cairns on an east-west axis (fig. 31).

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 31: GRAVES AT BAB020



BAB021

BAB021 occurs just outside the study area, and thus the settlement was not recorded in the desktop study. However, there are four graves associated with the settlement and these were recorded. The graves are stone cairns that are slightly sunken (fig. 32). One of the graves is that of a juvenile.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 32: GRAVES AT BAB021



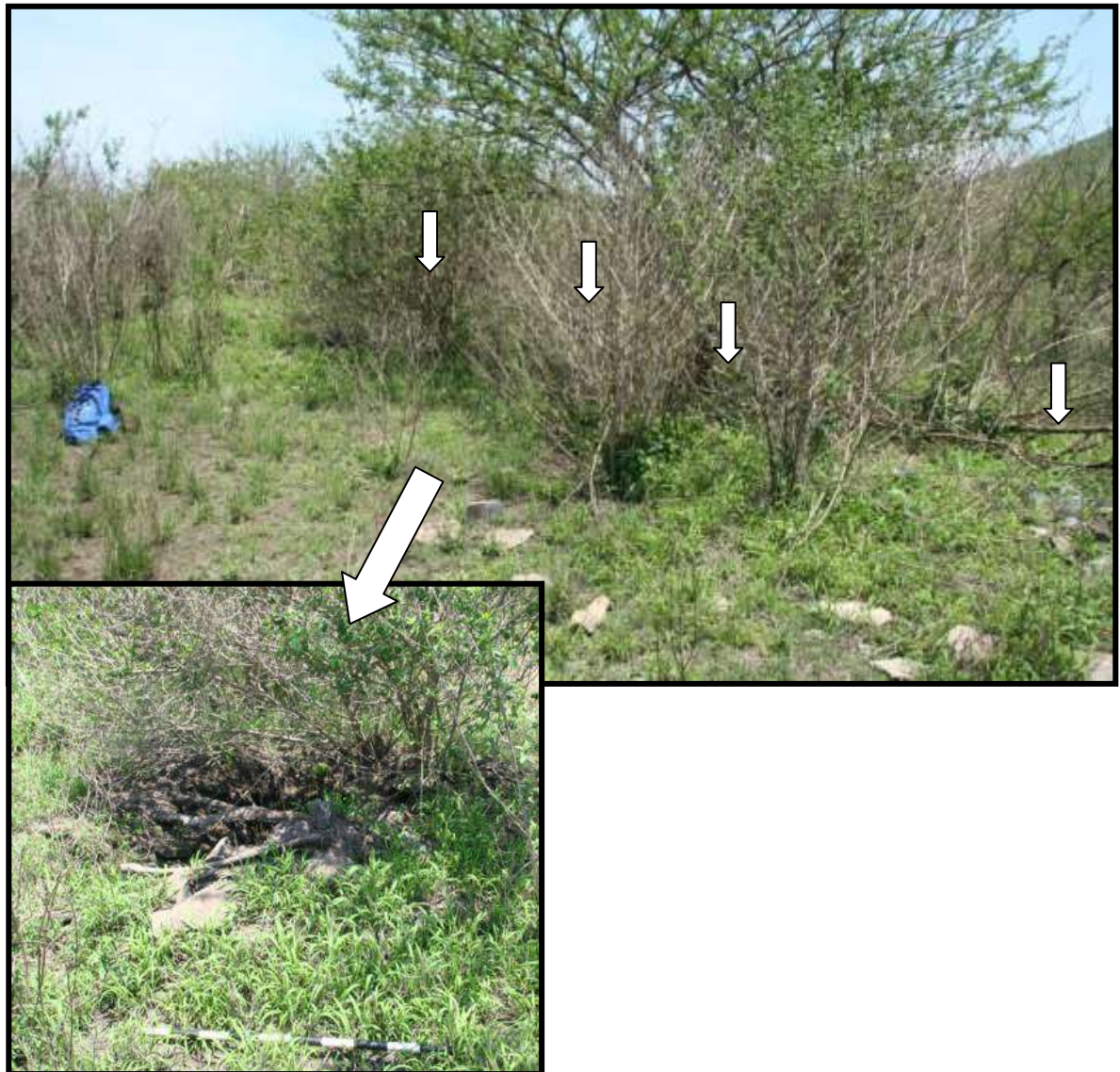
BAB022

BAB022 is associated with G1. G1 is a large settlement of at least six round houses, three rectangular houses and a cattle byre. There are four graves along the western side of the settlement. The graves are stone cairns on an east-west axis (fig. 33). The northern grave has several glass bottles on it while one of the middle graves has collapsed in the centre.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 33: GRAVES AT BAB022



BAB023

BAB023 is associated with G6. G6 is a small settlement of four round houses and a cattle byre. A stone cairn is located directly behind the main house. Above the cairn are fragments of plaster similar to other graves in the area (fig. 34). If this is a grave, then it is of a juvenile. The cairn is located in a similar position as other graves in the area, and thus it should be treated as a grave.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 34: POSSIBLE GRAVE AT BAB023



BAB024

BAB024 is associated with G5. G5 is a recent settlement of 5 – 6 round houses surrounding a cattle byre. There is a grave in the centre of the settlement, just above the byre. This grave has been plastered and demarcated (fig. 35). There are two mounds of sand surrounded by rocks on the eastern side. These are possible graves.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated.

FIG. 35: GRAVE AND POSSIBLE GRAVE AT BAB024



BAB025

BAB025 may be related to A19, although this area is severely eroded. The site consists of two graves with a possible sunken grave in the middle (fig. 36). The graves are stone cairns in a northeast-southwest orientation.

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The graves need to be clearly demarcated. The erosion gully near the graves should be filled and fixed, to ensure that the graves are not exposed.

FIG. 36: GRAVES AT BAB025



BAB026

BAB026 is associated with B9. The site is a small settlement of four houses on a steep slope. The easternmost house has painted decorations on the inside of the house (see fig. 4 bottom left). There is one modern grave in the centre of the site. The grave has a white plastered border and two *Erythrina spp.* growing beside it (fig. 37).

Significance: The human remains are of high significance and may not be affected without a social consultation process.

Mitigation: The grave needs to be clearly demarcated.

FIG. 37: GRAVE AT BAB025



B1

B1 is a large settlement covering an area of approximately 80m x 100m in size. While a site may have occurred there in 1937, it has been (re-) inhabited more recently. The house floor remains probably date to the more recent past as there are many modern artefacts around the site (fig. 38). However, on the outskirts of the site are a three *Euphorbia ingens*, and these are traditionally associated with human graves. No graves were observed at the site; however, it should be noted as having potential graves.

Significance: The site is of low significance if no human remains are noted.

Mitigation: The three older *Euphorbia ingens* should be treated as potential graves and they need to be clearly demarcated.

FIG. 38: RECTANGULAR HOUSE FLOOR AT B1



POTTERY

Isolated and small concentrations of pottery sherds were observed throughout the study area, especially on the higher slopes. These were never concentrated enough in a single area to be labelled as a site. Moreover, the sherds could date from the Late Iron Age, Historical Period or even the more recent past. All of the sherds were thin walled and undecorated, and thus adiagnostic. There are probably archaeological sites with the study area; however, the intensity of human occupation and agricultural activity in the area has disrupted these sites into arbitrary scatters of artefacts. Several upper grinding stones were noted, as well as (broken) lower grinding stones; however, these could also be attributed to the 1963 sites. Fig. 39 indicates some of the pottery sherds.

Significance: The pottery sherds are of low significance...

Mitigation: No further mitigation is required.

FIG. 39: EXAMPLE OF POTTERY SHERDS IN THE STUDY AREA



GENERAL COMMENTS

Several areas identified in the desktop study, especially those from the Google Earth maps, had no visible graves. Given the strong association of graves with most of these sites during the field survey, I would assume that all 'G' sites have graves. Unfortunately, not all were visible due to either preservation or dense vegetation. All 'G' sites, without recorded graves, should be treated as having potential graves. Similarly, the sites identified in the 1937 and 1963 maps have potential graves. This is discussed further in the management plan.

Sites B21, G21 – G25, G38, and G39 have all been recently ploughed, and thus have been mostly damaged.

PALAEONTOLOGICAL DESKTOP STUDY

The PIA desktop (Appendix A) notes that the area is of low palaeontological sensitivity.

“The study area is underlain entirely by Ordovician to Silurian aged sedimentary rocks of the Natal Group. These deposits consist primarily of quartzitic sandstone with minor shale beds....

No fossils have been described from the Ordovician/Silurian sediments of the Natal Group in KwaZulu-Natal (Johnson et al, 2006). The likelihood of finding fossils in these units is therefore very low” (Groenewald 2013, Appendix A)

No further mitigation is required.

MANAGEMENT PLAN

The management plan can be divided into three parts: Archaeological sites, known heritage sites with graves, and known heritage sites without graves.

The entire study area has isolated scatters or occurrences of archaeological artefacts and features. The artefacts are mostly disturbed and do not occur in significant numbers for specific sites to be recorded. No further mitigation, and neither is a permit, is required since these are not archaeological sites *per se*.

The built structures that occur in the study area post-date 1963 and are thus not technically protected by the heritage legislation. There are no unique, rare or significant features that would require further mitigation. All of the settlements are similar to those recorded in the wider geographical area, where the difference being in size of the settlement and the proportion of round versus rectangular houses. These are not significant and does not warrant further mitigation. However, all graves identified in the survey do require mitigation.

The project has two choices in terms of mitigation: grave removal or zero impact on graves. If grave removal is undertaken then a full social impact study will be required. If zero impact is chosen then all graves will need to be clearly demarcated. Demarcation will be as follows:

- Each grave or cluster of graves has a 5m buffer zone from the edge of the grave.
- This buffer zone is fenced off; however, some form of access gate will be required.
- An additional 15m buffer zone is placed around the fenced off area. No agricultural activity is allowed within this buffer zone.
- Demarcation needs to be clearly visible and the buffer zone needs to be kept clear of possible encroaching bamboo.
- Living descendents must have free access to the ancestral remains.
- This management plan, as well as the project needs appropriate approval from the community and any other IAPs.

All of those sites identified in the desktop study should be given a high sensitivity status. This does not mean that a buffer zone is required. Rather, any

bush clearance, and subsequent agricultural activity, needs to take into the account of the potential for human graves. I suggest a 50m radius is placed around the location of each of these sites. If any graves are found during bush clearance and initial phases of the project, then these need to be demarcated with the appropriate buffer zones. These sites need to be recorded and photographed, and the information needs to be submitted to Amafa KZN.

If human remains are uncovered during the course the project, then activity around that area needs to stop, and Amafa KZN needs to be informed.

I am not aware of a social impact study related to this project, and I assume that all living descendants of the known settlements have given approval to the project, and agree to the demarcation process mentioned above.

All of the sites mentioned in this report need to be placed onto the projects overall management plan. This will determine exactly which areas will be affected and by which activity. This list should then be submitted to Amafa KZN as an additional document.

CONCLUSION

A heritage survey was undertaken for the proposed Beema Bamboo Energy project, near Mandeni, KwaZulu-Natal. The area was expected to have a high archaeological sensitivity due to its proximity to a major water source and being on a spur of a hill. However, only scattered artefacts dating to the Middle and Late Stone Age were observed, as well as diagnostic pottery sherds that probably date to the last 300 years. The archaeological artefacts occur in small scatters across the study area and do not constitute a site, and thus should not require a permit from Amafa KZN.

The desktop study revealed that there were many human settlements in the study area since 1937. However, many of these no longer exist, and only the more recent settlements were noted during the survey. Most of the recent settlements have human graves directly associated with them and tend to date to the last 50 – 60 years. Many of the older settlements probably have graves, but they are now below the surface of the soil and are no longer visible. All of the recorded graves will need a 20m buffer zone around them. A fence will need to be placed 5m from the grave(s). Those settlements that did not have observable graves will need to be treated as sensitive with the possibility of human remains occurring.

The development may require proof of consultation with the local community, where consent is given for the demarcation of the human graves and the heritage management plan.

REFERENCES

Tripol4. 2013 Beema Bamboo to Energy Project: Enviro - Legal Assessment, Ilembe District Municipality, KwaZulu-Natal

APPENDIX A
PALAEONTOLOGICAL DESKTOP STUDY

**DESKTOP PALAEOLOGICAL
ASSESSMENT FOR A PROPOSED BAMBOO
PLANTATION, KWA-ZULU NATAL**

FOR Umlando

DATE: 29 October 2013

By

Gideon Groenewald

Cell: 082 339 9202

TABLE OF CONTENT

INTRODUCTION	66	
SOUTH AFRICAN NATIONAL HERITAGE RESOURCE ACT NO 25/1999		66
METHODOLOGY	67	
GEOLOGY	69	
PALAEONTOLOGY	70	
DISCUSSION	70	
MANAGEMENT PLAN	70	
CONCLUSION	71	
REFERENCES	72	
QUALIFICATIONS AND EXPERIENCE OF THE AUTHOR		73
DECLARATION OF INDEPENDENCE	73	

TABLE OF FIGURES

Figure 1 Locality of the Proposed Bamboo Plantation	66
Figure 2 Extract of 1:250 000 Geological Map sheet 2930 Durban showing the geology of the study area	69
Figure 3 Palaeontological sensitivity of the study area	71

LIST OF TABLES

Table 1	Palaeontological sensitivity analysis outcome classification	68
Table 2	Palaeontological significance of geological units on site	70

EXECUTIVE SUMMARY

Gideon Groenewald was appointed to undertake a desktop survey, assessing the potential palaeontological impact of a proposed agricultural development, possibly a bamboo plantation) located along the Tugela River approximately 3.5km West of Sundumbili and 4km North-east of Mdlebeni, Kwa-Zulu Natal Province.

This Palaeontological Assessment forms part of the Heritage Impact Assessment (HIA) and complies with the requirements of the South African National Heritage Resource Act No 25 of 1999. In accordance with Section 38 (Heritage Resources Management), a HIA is required to assess any potential impacts to palaeontological heritage within the development footprint.

The study area is underlain entirely by Ordovician to Silurian aged sedimentary rocks of the Natal Group. These deposits consist primarily of quartzitic sandstone with minor shale beds.

No fossils have been described from the Ordovician/Silurian sediments of the Natal Group in KwaZulu-Natal. The likelihood of finding fossils in these units is therefore very low.

The study area is underlain by Ordovician to Silurian aged quartzitic sandstone of the Natal Group in KwaZulu-Natal. No fossils have been described from these rock units and it is unlikely that any fossils will be found in the rocks underlying the study area. A Low palaeontological sensitivity is allocated to the development site.

It is recommended that no further palaeontological investigation is necessary for this site and the development will have no adverse impact on the palaeontological heritage at this locality.

INTRODUCTION

Gideon Groenewald was appointed to undertake a desktop survey, assessing the potential palaeontological impact of a proposed agricultural development, possibly a bamboo plantation) located along the Tugela River approximately 3.5km West of Sundumbili and 4km North-east of Mdlebeni, Kwa-Zulu Natal Province (Figure 1).



Figure 1 Locality of the Proposed Bamboo Plantation

SOUTH AFRICAN NATIONAL HERITAGE RESOURCE ACT NO 25/1999

This Palaeontological Assessment forms part of the Heritage Impact Assessment (HIA) and complies with the requirements of the South African National Heritage Resource Act No 25 of 1999. In accordance with Section 38 (Heritage Resources Management), a HIA is required to assess any potential impacts to palaeontological heritage within the development footprint.

Categories of heritage resources recognised as part of the National Estate in Section 3 of the Heritage Resources Act, and which therefore fall under its protection, include:

- geological sites of scientific or cultural importance;
- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
- objects with the potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.

METHODOLOGY

Following the "SAHRA APM Guidelines: Minimum Standards for the Archaeological & Palaeontological Components of Impact Assessment Reports" the aims of the palaeontological impact assessment are:

- to identify exposed and subsurface rock formations that are considered to be palaeontologically significant;
- to assess the level of palaeontological significance of these formations;
- to comment on the impact of the development on these exposed and/or potential fossil resources and
- to make recommendations as to how the developer should conserve or mitigate damage to these resources.

In preparing a palaeontological desktop study the potential fossiliferous rock units (groups, formations etc) represented within the study area are determined from geological maps and Google Earth imagery. The known fossil heritage within each rock unit is inventoried from the published scientific literature, previous palaeontological impact studies in the same region and the author's field experience.

The likely impact of the proposed development on local fossil heritage is determined on the basis of the palaeontological sensitivity of the rock units concerned and the nature and scale of the development itself, most notably the extent of fresh bedrock excavation envisaged. The different sensitivity classes used are explained in Table 1 below.

Table 1 Palaeontological sensitivity analysis outcome classification

Sensitivity	Description
Low Sensitivity	Areas where there is likely to be a negligible impact on the fossil heritage. This category is reserved largely for areas underlain by igneous rocks. However, development in fossil bearing strata with shallow excavations or with deep soils or weathered bedrock can also form part of this category.
Moderate Sensitivity	Areas where fossil bearing rock units are present but fossil finds are localised or within thin or scattered sub-units. Pending the nature and scale of the proposed development the chances of finding fossils are moderate. A field-based assessment by a professional palaeontologist is usually warranted.
High Sensitivity	Areas where fossil bearing rock units are present with a very high possibility of finding fossils of a specific assemblage zone. Fossils will most probably be present in all outcrops and the chances of finding fossils during a field-based assessment by a professional palaeontologist are very high. Palaeontological mitigation measures need to be incorporated into the Environmental Management Plan

When rock units of moderate to high palaeontological sensitivity are present within the development footprint, a field-based assessment by a professional palaeontologist is usually warranted.

The key assumption for this desktop study is that the existing geological maps and datasets used to assess site sensitivity are correct and reliable. However, the geological maps used were not intended for fine scale planning work and are largely based on aerial photographs alone, without ground-truthing.

These factors may have a major influence on the assessment of the fossil heritage significance of a given development and, without supporting field assessments, may lead to either:

- an underestimation of the palaeontological significance of a given study area due to ignorance of significant recorded or unrecorded fossils preserved there, or
- an overestimation of the palaeontological sensitivity of a study area, for example when originally rich fossil assemblages inferred from geological maps have in fact been destroyed by weathering, or are buried beneath a thick mantle of unfossiliferous “drift” (soil, alluvium etc).

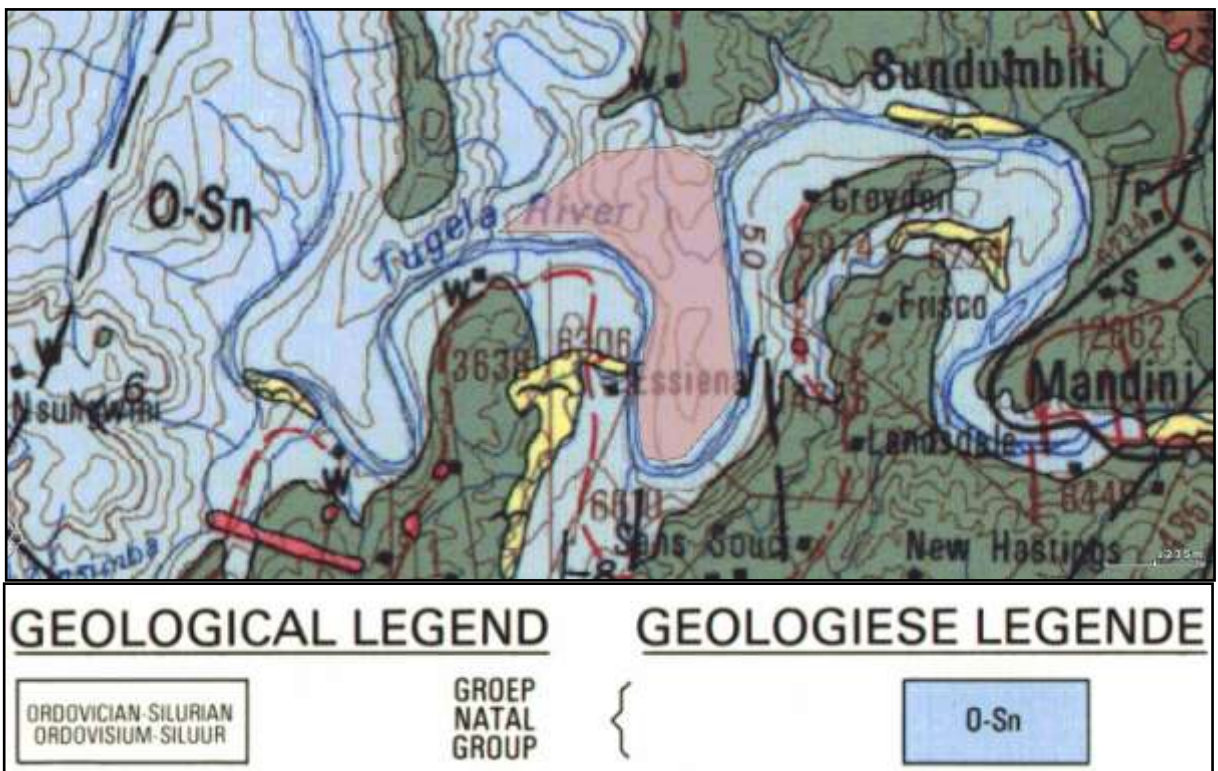


Figure 2 Extract of 1:250 000 Geological Map sheet 2930 Durban showing the geology of the study area

GEOLOGY

The study area is underlain entirely by Ordovician to Silurian aged sedimentary rocks of the Natal Group. These deposits consist primarily of quartzitic sandstone with minor shale beds.

PALAEONTOLOGY

No fossils have been described from the Ordovician/Silurian sediments of the Natal Group in KwaZulu-Natal (Johnson et al, 2006). The likelihood of finding fossils in these units is therefore very low.

DISCUSSION

The predicted palaeontological impact of the development is based on the initial mapping assessment and literature reviews. The palaeontological significance is summarised in Table 2.

Table 2 Palaeontological significance of geological units on site

Geological Unit	Rock Type and Age	Fossil Heritage	Vertebrate Biozone	Palaeontological Sensitivity
Natal Group	Quartzitic sandstone ORDOVICIAN SILURIAN	None	None	Low

MANAGEMENT PLAN

The likely impact of the proposed development on local fossil heritage is determined on the basis of the palaeontological sensitivity of the rock units concerned and the nature and scale of the development itself, most notably the extent of fresh bedrock excavation envisaged. The different sensitivity classes used are explained in Table 1 above.

The palaeontological sensitivity of the development is related to the specific geology that underlies the development footprints.

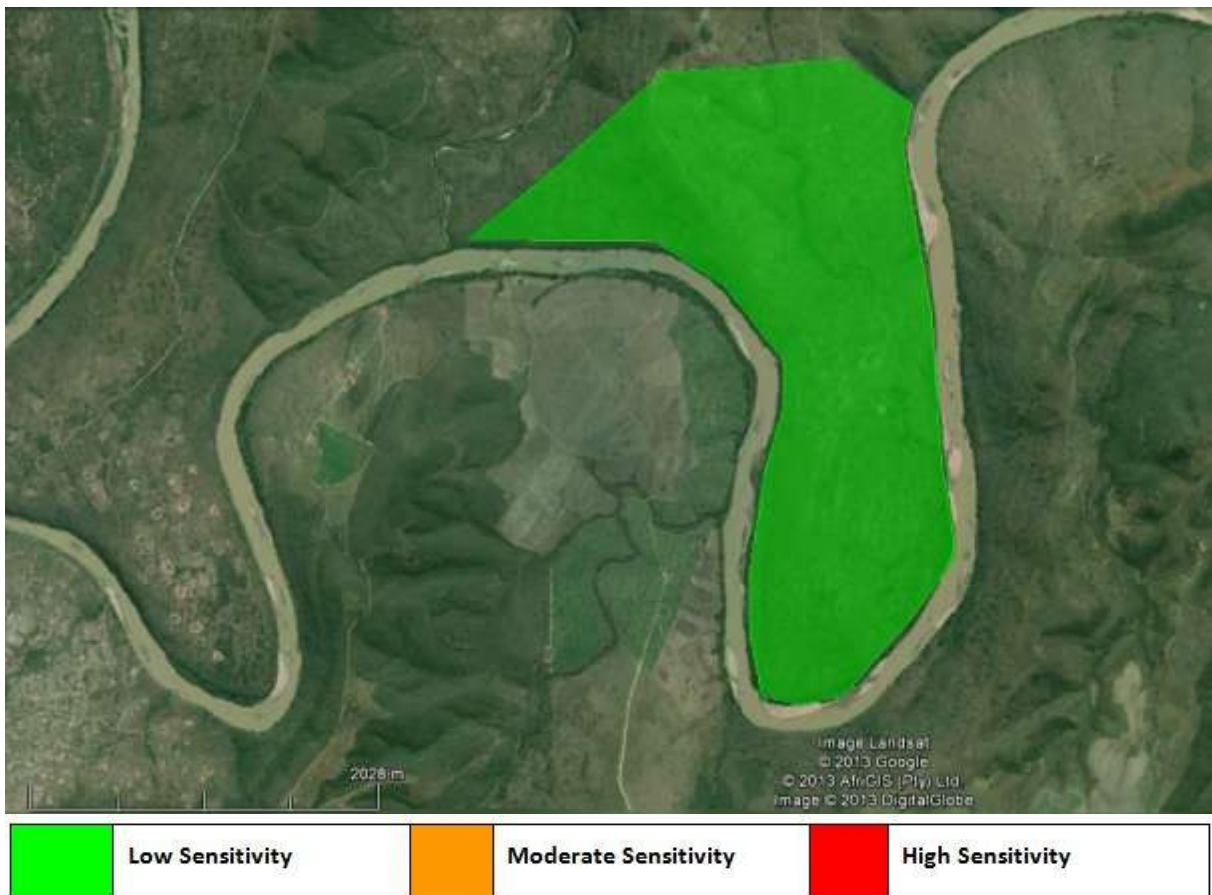


Figure 3 Palaeontological sensitivity of the study area

CONCLUSION

The study area is underlain by Ordovician to Silurian aged quartzitic sandstone of the Natal Group in KwaZulu-Natal. No fossils have been described from these rock units and it is unlikely that any fossils will be found in the rocks underlying the study area. A Low palaeontological sensitivity is allocated to the development site.

It is recommended that no further palaeontological investigation is necessary for this site and the development will have no impact on the palaeontological heritage at this locality.

REFERENCES

Johnson MR , Anhaeusser CR and Thomas RJ (Eds) (2006). The Geology of South Africa. GSSA, Council for Geoscience, Pretoria.

QUALIFICATIONS AND EXPERIENCE OF THE AUTHOR

Dr Gideon Groenewald has a PhD in Geology from the University of Port Elizabeth (Nelson Mandela Metropolitan University) (1996) and the National Diploma in Nature Conservation from Technicon RSA (the University of South Africa) (1989). He specialises in research on South African Permian and Triassic sedimentology and macrofossils with an interest in biostratigraphy, and palaeo-ecological aspects. He has extensive experience in the locating of fossil material in the Karoo Supergroup and has more than 20 years of experience in locating, collecting and curating fossils, including exploration field trips in search of new localities in the southern, western, eastern and north-eastern parts of the country. His publication record includes multiple articles in internationally recognized journals. Dr Groenewald is accredited by the Palaeontological Society of Southern Africa (society member for 25 years).

DECLARATION OF INDEPENDENCE

I, Gideon Groenewald, declare that I am an independent specialist consultant and have no financial, personal or other interest in the proposed development, nor the developers or any of their subsidiaries, apart from fair remuneration for work performed in the delivery of palaeontological heritage assessment services. There are no circumstances that compromise the objectivity of my performing such work.



Dr Gideon Groenewald
Geologist

APPENDIX B
SITE RECORD FORMS

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**SITE CATEGORY:** (X where applicable)

Stone Age:
 Early Iron Age:
 Late Iron Age
 Historical Period: x

Recorder's Site No.: BAB 01
 Official Name: No 21 15841 GU
 Local Name: Shayisa
 Map Sheet: 2931AB
 GPS reading: S29 08 58.7 E31 20 13.8 127 m

**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 01 is located 6.2km from here.

SITE DESCRIPTION:

Type of Site: Graves

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB01 is related to either G45 of G46. The site consists of three graves. Two of the graves consist of an oval outline of rocks with a sand infill, while the one grave is plastered along the sides and the top. All graves are unmarked and in east-west orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 02

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 57.6 E31 20 12.5 128 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 02 is located 6.1km from here.

SITE DESCRIPTION:

Type of Site: Graves

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB02 consists of six graves near a large *Acacia spp.* tree. The graves consist of stone cairns in an approximate east-north orientation. They appear to be recent. These graves are probably related to G45

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x Modern

Recorder's Site No.: BAB 03

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 09 06.8 E31 20 19.0 112 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 03 is located 6.5km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB03 is related to G26. G26 is an extensive settlement of at least twelve houses, surrounding a cattle byre. The entrance to the settlement is from southeast, or downhill. The 1937 site of A7 occurs nearby to the southeast; however, the artefacts on this site are clearly modern. BAB03 consists of seven graves located behind the settlement. The graves are in a northwest-southeast orientation and consist of an oval shape surrounded by stone with a sand infill.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 04

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 09 38.2 E31 20 25.6 124 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 04 is located 7.5km from here.

SITE DESCRIPTION:

Type of Site: Graves

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB04 consists of three graves underneath a large *Acacia spp.* tree. There are no visible homesteads associated with these graves. The graves are stone cairns and on an east-west axis. The cairns appear to have sunken into the ground, suggesting that they may significantly predate 2006.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: BAB 05
Official Name: No 21 15841 GU
Local Name: Shayisa
Map Sheet: 2931AB
GPS reading: S29 09 33.8 E31 20 24.9 128 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 05 is located 7.4km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement
Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes
What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes
Digital pictures: x Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson
Address: PO Box 102532, Meerensee, 3901
Date: 29/10/2013
Owner: State

Description of site and artefactual content.

BAB05 is associated with a cleared area and faint hut floors ~60m southwest of G34. The site does not show up on Google Earth imagery (apart from the cleared area), and the hut floors are under low-lying bushes. The graves consist of oval outlined features. Two of the graves are packed with sand and rock infill, while one has a plaster cover over the top. These graves occur underneath an *Acacia spp.* Tree. BAB05A is directly associated with G34 and ~60m from BAB05. G34 consists of a settlement of nine circular houses surrounding a cattle byre. The entrance to the byre/settlement is to the southeast and downhill. The graves are located behind the main house. There are two graves both of which are stone cairns.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 06

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 09 32.1 E31 20 26.6 128 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 06 is located 7.3km from here.

SITE DESCRIPTION:

Type of Site: Graves

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB06 are two graves that are directly associated with B26 and G42. In all likelihood, the site dates to B26. The two graves are stone cairns each in the centre of the remains of a house. The graves occur in the western houses and are on a northeast-southwest orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 07

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 09 24.0 E31 20 28.1 116 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 07 is located 7.1km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB07 is related to G30. The settlement consists of seven round houses and one rectangular house, surrounding a cattle byre. The two graves are stone cairns covered with plaster. These graves are directly behind the rectangular house and in a northwest-southeast orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 08

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 57.0 E31 20 35.0 91 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 08 is located 7.2km from here.

SITE DESCRIPTION:

Type of Site: Graves and a settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB08 may be related to G18 or G19. Both sites are standard sized settlements that date between 1963 and 2006, but probably closer to the former. There are four graves at the site. Three graves have been plastered around the sides and top, while one is a stone cairn. The graves are in a northeast-southwest orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 09

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 51.5 E31 20 33.6 100 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB09 is located 6.7km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB09 is probably related to B15. The settlement at B15 is poorly preserved with one house floor just visible. The grave consists of a stone cairn and a headstone. The grave appears to be placed at the edge of a sisal feature. The grave is on an east-west orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 010

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 46.4 E31 20 34.4 102 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 010 is located 6.7km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB010 is related to G48 that appears to have been built on top of B13. The site is a small settlement of three houses and no discernible cattle byre. The two graves consist of stone cairns. The graves appear to be recent, and thus not related to B13. The graves are on an east-west orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 011

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: 6. BAB011 12.6 km 6.7 km 0:13:11 0:23:19 62° true S29 08 44.5 E31 20 34.3 105 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 011 is located 6.7km from here.

SITE DESCRIPTION:

Type of Site: Graves

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 29/10/2013

Owner: State

Description of site and artefactual content.

BAB011 is no directly related to any observable settlement. The site consists of three graves made out of stone cairns. The cairns are on an approximate east-west axis and do not appear to be recent.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x Modern

Recorder's Site No.: BAB 012

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 42.9 E31 20 34.1 109 m



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 012 is located 6.7km from here.

SITE DESCRIPTION:

Type of Site: Cemetery

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB012 is not related to any specific settlement. The cemetery consists of 15 – 20 graves in an approximate southeast-northwest orientation. The impression is that it was a family cemetery for several of the settlements in the immediate area. These are probably the settlements of G12, G49, G50, and G51, as these are linked with walk paths. No graves were found at these other sites. Two graves have headstones (one dates to 2006). Most of the graves are stone cairns; however, two are outlined with rocks and plaster, while one is encased in plaster. The graves contain adult and juvenile remains.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 014

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 48.3 E31 20 29.7 111 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 014 is located 6.6km from here.

SITE DESCRIPTION:

Type of Site: Grave

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB014 is a single stone cairn that is probably a grave. The cairn is partially sunken suggesting it is relatively old. There are no settlements directly associated with the grave, although A13 occurs nearby. The site should be treated as if it is a grave. The grave is in an approximate northeast-southwest orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 015

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 51.9 E31 20 28.1 100 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 015 is located 6.5km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB015 is associated with G43, although site B18 occurs nearby as well. G43 is a small settlement of four houses. There are two graves associated with this settlement. The graves are raised stone cairns in an approximate northeast-southwest orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x Modern

Recorder's Site No.: BAB 016

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 09 03.2 E31 20 18.0 117 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 016 is located 6.4km from here.

SITE DESCRIPTION:

Type of Site: Graves

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings : x

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB016 is not associated with any specific settlement; however, it is near G17. G17 is a poorly preserved settlement with no discernible features. There are two graves at the site. White plastered stones surround both graves. The graves do not appear to be recent; however, they do appear to post-date 1963. The graves are on an approximate northeast-southwest orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 017

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 09 02.9 E31 20 13.7 121 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 017 is located 6.2km from here.

SITE DESCRIPTION:

Type of Site: Graves and a settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB17 is associated with G44. G44 is a recent small settlement of four round houses and two rectangular houses. Both graves occur in the centre of the settlement above the cattle byre. One grave is a stacked stone cairn in front of the main house, while the second grave has a circle of stone covered by a pile of sand. The graves are in an approximate northeast-southwest orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age: x
Early Iron Age:
Late Iron Age
Historical Period:

Recorder's Site No.: BAB 018
Official Name: No 21 15841 GU
Local Name: Shayisa
Map Sheet: 2931AB
GPS reading: S29 09 11.8 E31 20 22.7 93 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 018 is located 6.6km from here.

SITE DESCRIPTION:

Type of Site: Stone tool scatter
Merits conservation: No. The tools are of low significance.

Threats: Yes
What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes
Digital pictures: x Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson
Address: PO Box 102532, Meerensee, 3901
Date: 30/10/2013
Owner: State

Description of site and artefactual content.

Site consists of

BAB018 is a scatter of Middle Stone Age tools. The tools are made on quartzite and have been exposed by a recent track. These tools are probably scattered across the entire hill as isolated stone tools, including Late Stone Age tools, were noted during the survey. The tools would have been disturbed by natural run-off and agricultural activity and are thus in a secondary context. The entire hill can be considered as a stone age scatter. The tools are mostly standard flakes, with a few irregular cores.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 020

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 54.2 E31 20 11.4 131 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 020 is located 6.0 km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB020 is associated with G47. G47 is a large settlement of eight houses. The houses are aligned in two rows and do not surround the cattle byre. The main grave occurs downhill, in front of the byre, while a possible grave occurs within a house. Both graves are stone cairns on an east-west axis.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 021

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 54.0 E31 20 05.6 140 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 021 is located 5.8km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB021 occurs just outside the study area, and thus the settlement was not recorded in the desktop study. However, there are four graves associated with the settlement and these were recorded. The graves are stone cairns that are slightly sunken. One of the graves is that of a juvenile.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 022

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 42.0 E31 19 13.0 70 m



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 022 is located 6.2km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB022 is associated with G1. G1 is a large settlement of at least six round houses, three rectangular houses and a cattle byre. There are four graves along the western side of the settlement. The graves are stone cairns on an east-west axis. The northern grave has several glass bottles on it while one of the middle graves has collapsed in the centre.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 023

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 43.3 E31 19 24.5 86 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 023 is located 5.9km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB023 is associated with G6. G6 is a small settlement of four round houses and a cattle byre. A stone cairn is located directly behind the main house. Above the cairn are fragments of plaster similar to other graves in the area. If this is a grave, then it is of a juvenile. The cairn is located in a similar position as other graves in the area, and thus it should be treated as a grave.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x Modern

Recorder's Site No.: BAB 024

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 44.0 E31 19 28.0 92 m



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 024 is located 5.8km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings : x

Re-drawings: x

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB024 is associated with G5. G5 is a recent settlement of 5 – 6 round houses surrounding a cattle byre. There is a grave in the centre of the settlement, just above the byre. This grave has been plastered and demarcated. There are two mounds of sand surrounded by rocks on the eastern side. These are possible graves.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 025

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 42.0 E31 19 35.8 114 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 025 is located 5.6km from here.

SITE DESCRIPTION:

Type of Site: Graves

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated. The erosion gully near the graves should be filled and fixed, to ensure that the graves are not exposed.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

BAB025 may be related to A19, although this area is severely eroded. The site consists of two graves with a possible sunken grave in the middle. The graves are stone cairns in a northeast-southwest orientation.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: BAB 026

Official Name: No 21 15841 GU

Local Name: Shayisa

Map Sheet: 2931AB

GPS reading: S29 08 42.1 E31 19 41.7 139 m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

From Mandeni drive to Sundumbili. At Sundumbili get onto the D2023. After 574m, turn right onto the D2022. Follow this road for 4.9km before turning left onto the D1654. BAB 026 is located 5.5km from here.

SITE DESCRIPTION:

Type of Site: Graves and settlement

Merits conservation: Yes. The human remains are of high significance and may not be affected without a social consultation process. The graves need to be clearly demarcated.

Threats: Yes

What threats: THE BEEMA BAMBOO TO ENERGY PROJECT

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 30/10/2013

Owner: State

Description of site and artefactual content.

Site consists of

BAB026 is associated with B9. The site is a small settlement of four houses on a steep slope. The easternmost house has painted decorations on the inside of the house. There is one modern grave in the centre of the site. The grave has a white plastered border and two *Erythrina spp.* growing beside it.

