

Heritage Walkthrough

**FOR THE PROPOSED CONSTRUCTION OF THE ESKOM INVUBU
THETA 400KV AND UMFOLOZI MBEWU LOOP-INS, KZN**

**Client:
AECOM**

**Client info:
Theo Bodvin**

Tel: +27-(0)-72-817-7238

E – mail: theo.bodvin@aecom.com



HCAC

Private Bag X1049
Suite 34 Modimolle 0510
jaco.heritage@gmail.com
0823738491

Report Author:

Mr. J. van der Walt

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CLIENT:

AECOM

CONTACT PERSON:

Mr Theo Bodvin

LEADING CONSULTANT:

Heritage Contracts and Archaeological
Consulting CC (HCAC)

CONTACT PERSON:

Jaco van der Walt

Heritage Contracts and Archaeological
Consulting

Professional Member of the Association of
Southern African Professional Archaeologist
(#159)

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EXECUTIVE SUMMARY

Site name and location: The project is referred to as the Invubu-Theta 400 kV Transmission power line project. The project consists of the proposed construction of the 400 kV Transmission power line between the existing Invubu substation situated to the north-east of Richards Bay and the proposed new Theta substation near Empangeni. The proposed Invubu-Theta 400 kV Transmission power line project will also include an extension of the 400kV Busbar within the existing Invubu substation for the installation of the 400 kV Feeder Bay

Purpose of the study: Heritage Walk through of the proposed alignment focusing on tower positions to determine the presence of cultural heritage sites and the impact of the proposed tower positions on these non-renewable resources.

1:50 000 Topographic Map: 2831DB and 2832CA.

EIA Consultant: AECOM

Developer: Eskom Holdings Ltd

Heritage Consultant: Heritage Contracts and Archaeological Consulting CC (HCAC).

Contact person: Jaco van der Walt Tel: +27 82 373 8491

E -mail jaco.heritage@gmail.com.

Date of Report: 11 January 2016

Findings of the Assessment:

The impacts to heritage resources by the proposed development are considered to be low as the correct mitigation measures will nullify impacts on the heritage resources. Eight heritage features were recorded during the walk through for the project. The recorded features consist of Middle Stone Age (MSA) material, Iron Age material, structures possibly older than 60 years and graves. Direct impact of the recorded features by tower positions are minimal but a secondary impact is possible during the construction phase (clearing of power line corridor) of the project.

Therefore some recommendations are made to protect the sites from accidental damage during the construction phase of the project and are discussed in Section 8 of this report.

No cultural landscape elements were noted apart from the extensive sugar cane fields and plantations. An independent visual assessment was conducted as part of the EIA for the project and therefore visual impacts are not addressed in detail as part of the heritage walk through.

If the recommendations made in this report are adhered to and based on the approval from SAHRA no red flags are identified. The main aim of the walk down was to make micro adjustments of the line or tower positions as necessary and this was done on site.

Disclaimer: *Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Heritage Contracts and Archaeological Consulting CC and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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ABBREVIATIONS

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMPR: Environmental Management Programme
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency
SAHRIS: South African Heritage Resources Information System

**Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

GLOSSARY

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1. BACKGROUND INFORMATION

Heritage Contracts and Archaeological Consulting CC has been contracted by Aecom to conduct a heritage walkthrough for the proposed Invubu Theta Power Line project, between Empangeni and Richardsbay Kwa Zulu Natal Province. The report forms part of the Environmental Management Programme Report (EMPR) for the proposed project.

The aim of the study is to survey the proposed tower positions to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, review of the HIA for the proposed project; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey eight features of heritage significance were identified within the power line corridor. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to SAHRA for review.

1.1 Terms of Reference

Field study

Conduct a field study to: a) visit the proposed tower positions to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of identified as significant areas; c) determine the levels of significance of the various types of heritage resources affected by the proposed towers.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

1.2. Archaeological Legislation and Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of a heritage specialist input is to:

- » Identify any heritage resources, which may be affected;
- » Assess the nature and degree of significance of such resources;
- » Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- » Assess the negative and positive impact of the development on these resources;
- » Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2) (b) of the NEMA and Sections 39(3) (b) (iii) of the MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement. After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to.

To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

1.3 Description of Study Area

1.3.1 Location Data

The proposed 400kV Transmission line will be constructed between the existing Invubu Substation (28° 41' 18.9900" S, 32° 02' 08.7424" E) situated to the north-east of Richards Bay and at the proposed new Theta substation (28° 42' 16.7882" S, 31° 45' 50.2461" E) to the north west of Empangeni (Figure 1). The proposed alignment is approximately 40 km long. According to Mucina *et al* (2006), the vegetation in the study area consists of coastal forest and thornveld as well as Zululand thornveld. The study area is located within both the Umhlathuze and Ntambanana local municipality.

1.3.2. Location Map

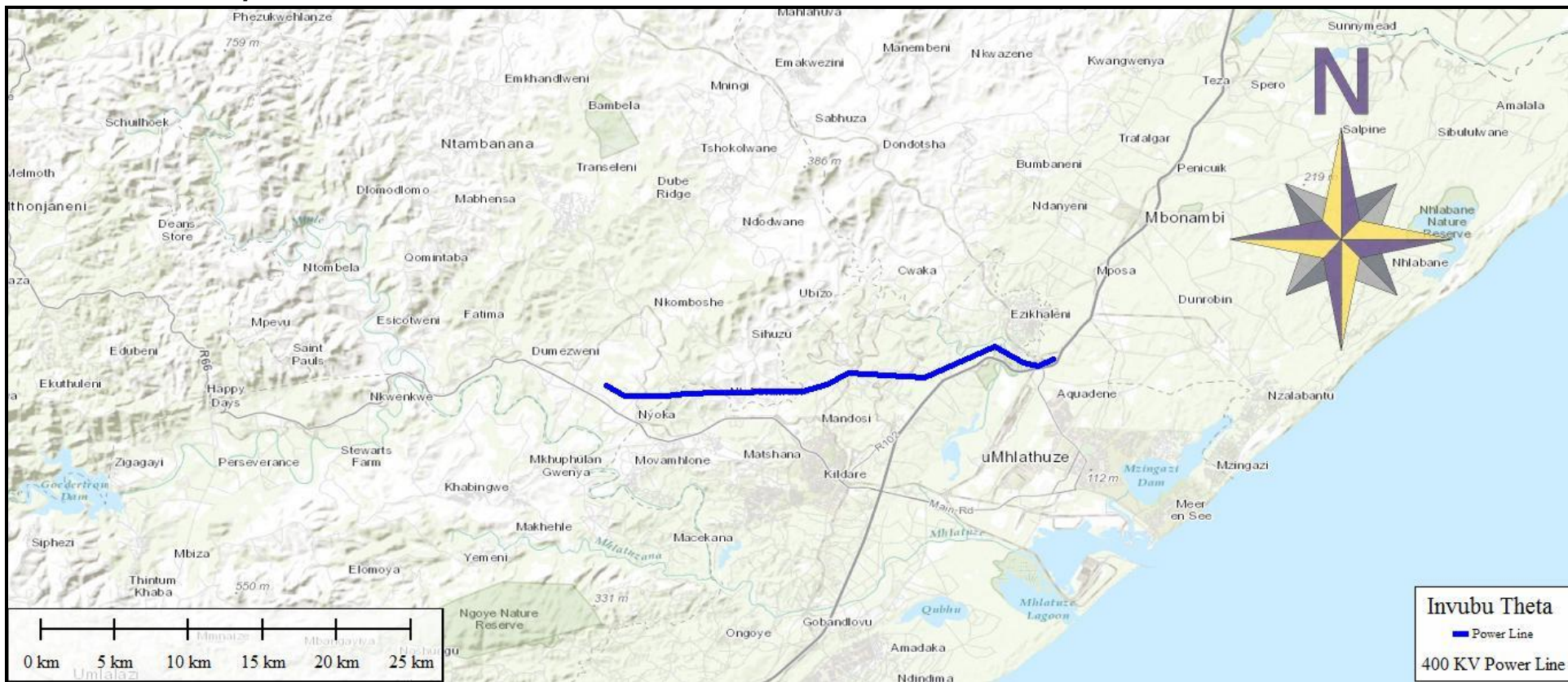


Figure 1: Locality Map

Heritage Walkthrough
Invubu Theta

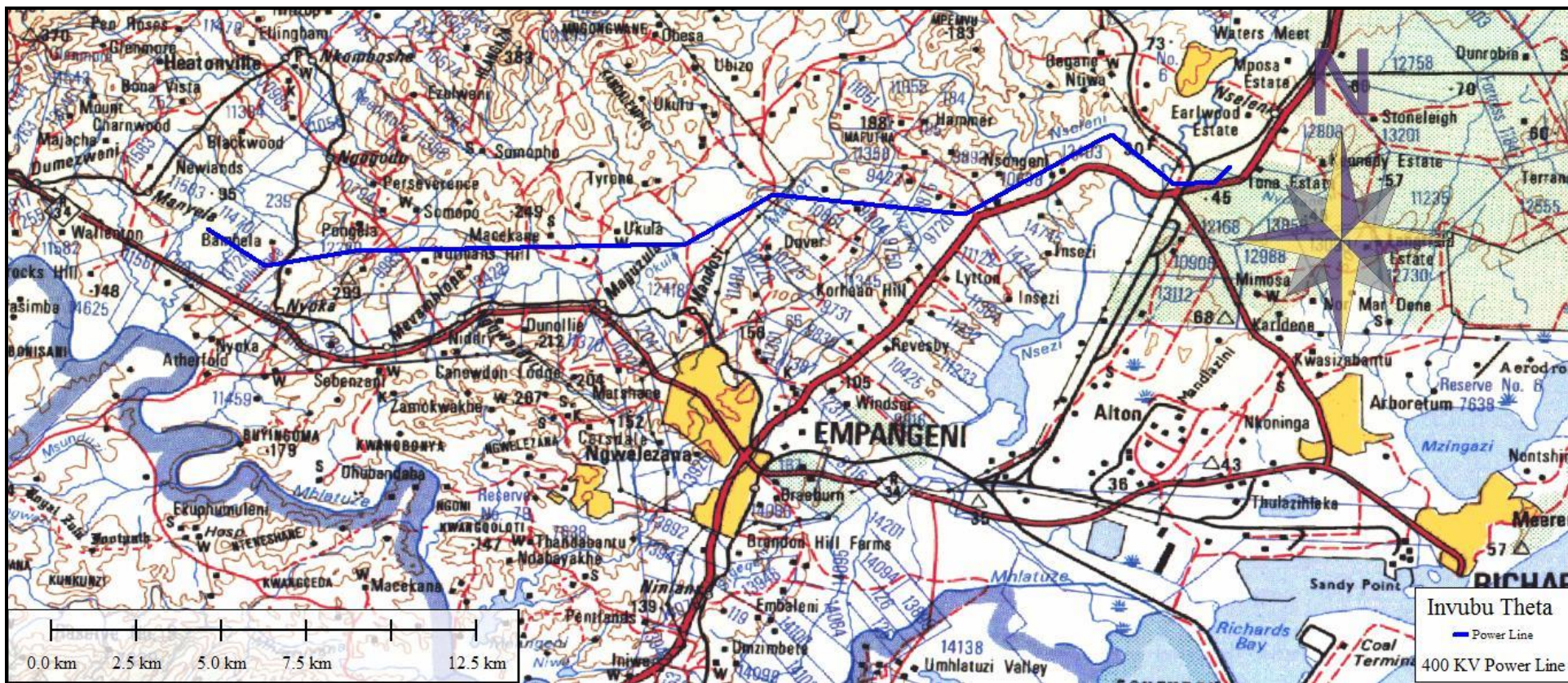


Figure 2. Extract of the 2830 topographic sheet.

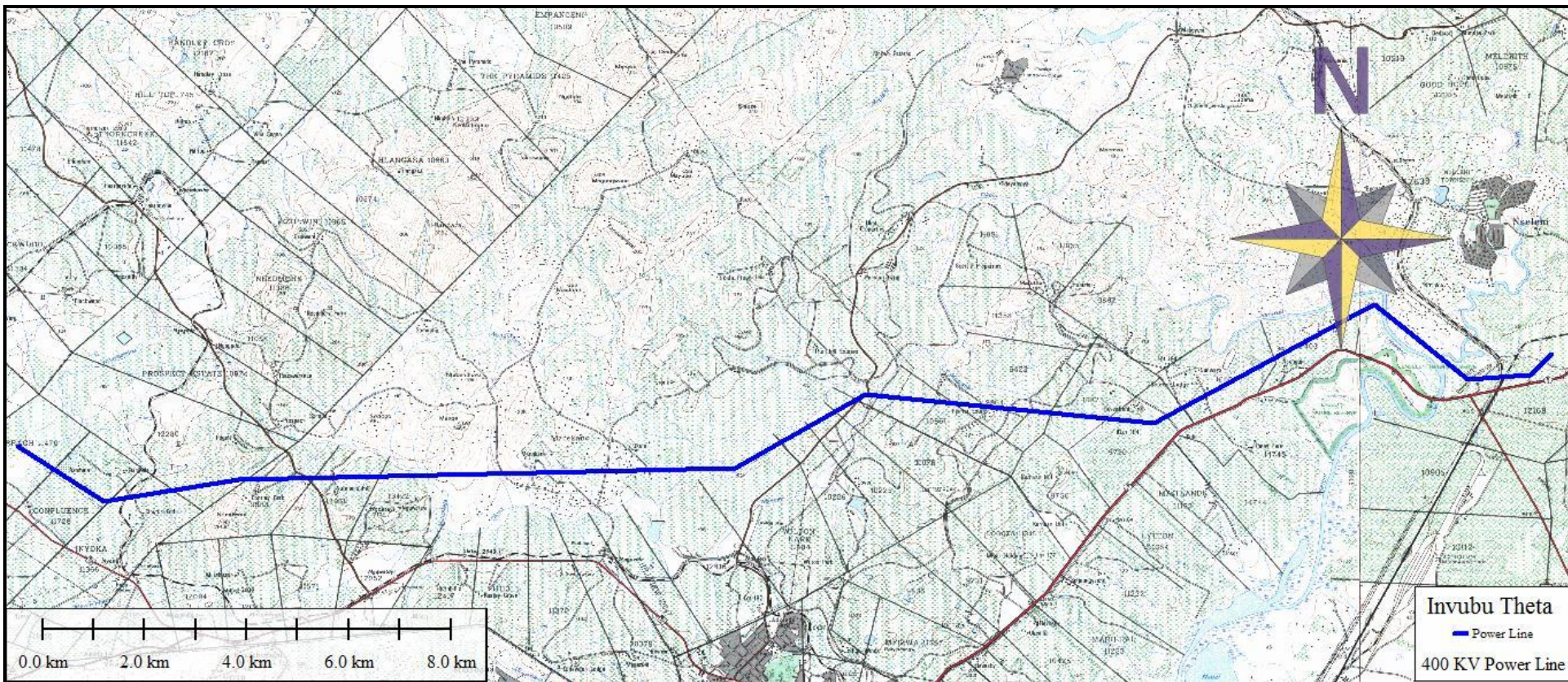


Figure 3. 2831 DB & 2832 CA Topographic Map

2. APPROACH AND METHODOLOGY

The methodology used for walk through of transmission lines is different to the methodology for projects where AIA's or HIA's are needed. A HIA report was compiled as part of the EIA and subsequently as part of the construction EMP the walk through is conducted. Since the initial HIA (EIA) for the project dealt with obtaining desktop information to contextualise the study area, this is not repeated during the walk through phase. However to understand the heritage context of the study area the following phased approach was utilised for this project.

2.1 Phase 1

Phase 1 included a review of the scoping study conducted for the project (included in the EIA – date unknown). This was complimented by consulting previous CRM reports (SAHRIS) conducted in the area after the report was done. The aim of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves of the area.

Google Earth and 1:50 000 & 1: 25 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located; these locations were marked and visited during the field work phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

2.2 Phase 2 - Physical Surveying

A field survey of the linear development of approximately 40 km was conducted by a group of specialists as well as representatives from ESKOM and Mr Theo Bodvin from AECOM who assisted in locating graves sites and sites of archaeological significance. The heritage component focussed on the proposed tower positions while giving special attention to drainage lines, hills and outcrops, high lying areas and disturbances in the topography. The proposed tower positions were surveyed on foot by a professional archaeologist from the 29th November to the 3rd December 2015.

Sites recorded was plotted on 1:50 000 maps and their GPS co-ordinates noted. Digital photographs were taken at all the sites.

2.3. Limitations and assumptions

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. Thick vegetation and sugar cane fields in certain portions restricted accessibility to the tower positions as well as archaeological visibility. Only the proposed power line corridor was surveyed as indicated in the location maps, and not the entire farm that the power line traverses. At the time of the walk through the location of construction camps and access routes were not available and were not assessed. This study did not include the assessment of the new proposed Theta substation. This study did not assess living or intangible heritage.

The description of the proposed project, provided by the client, is assumed to be accurate as well as the results of the previous HIA. It must be noted that the Natal Museum database has not been referenced in previous studies.

Very little academic research has been done in the greater study area of the proposed power line. Although Heritage Contracts and Archaeological Consulting CC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

Any changes or deviations of the line or tower positions will have to be assessed separately.

3 NATURE OF THE DEVELOPMENT

Construction of the proposed 400kV Transmission line from the existing Invubu Substation to the new proposed Theta Substation, as well as an extension of the 400kV GIS Busbar for the installation of a 400kV Feeder Bay at the Invubu Substation.

4. ARCHAEOLOGICAL AND CULTURAL HISTORIC BACKGROUND

The archaeology of KwaZulu-Natal can be divided in three main periods namely the Stone Age, Iron Age and Historical period.

Stone Age

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases.

Yet sometimes the recognition of cultural groups, affinities or trends in technology and/or subsistence practices, as represented by the sub-phases or industrial complexes, is achievable (Lombard 2011). The three main phases can be divided as follows;

- » Later Stone Age; associated with Khoi and San societies and their immediate predecessors. - Recently to ~30 thousand years ago
- » Middle Stone Age; associated with Homo sapiens and archaic modern human - . 30-300 thousand years ago.
- » Earlier Stone Age; associated with early Homo groups such as Homo habilis and Homo erectus. - 400 000-> 2 million years ago.

The LSA is well represented in KwaZulu-Natal with an abundance of rock art, like the rock paintings at Giants Castle and Kamberg in the Drakensburg Mountains (Vinnicombe, 1976). Rock art sites have been also been documented in the areas around Estcourt, Mooi River and Dundee. Several caves in KZN contain significant archaeological deposits like the well-known MSA site of Sibudu Cave on the coast of KwaZulu-Natal, which shows evidence for early forms of cognitive human behavioural patterns (Wadley, 2005). Another well-known cave called Border Cave is situated some 40 kilometres to the north east of the study area at the Ingodini Border Cave Museum Complex. The site was first investigated by Raymond Dart in 1934; here excavations exposed a thick deposit of archaeological material dating from the Iron Age overlaying MSA artefacts. Later excavations, by Beaumont in the early 1970's, revealed a complete MSA sequence succeeded by Early and Later Iron Age deposits (Klein 1977).

Iron Age and historical period

Bantu-speaking people moved into Eastern and Southern Africa about 2,000 years ago (Mitchell, 2002). These people cultivated sorghum and millets, herded cattle and small stock and manufactured iron tools and copper ornaments. Because metalworking represents a new technology, archaeologists call this period the Iron Age. Characteristic ceramic styles help archaeologists to separate the sites into different groups and time periods. The Iron Age as a whole represents the spread of Bantu speaking people and includes both the Pre-Historic and Historic periods. It can be divided into three distinct periods:

- » The Early Iron Age: Most of the first millennium AD.
- » The Middle Iron Age: 10th to 13th centuries AD
- » The Late Iron Age: 14th century to colonial period.

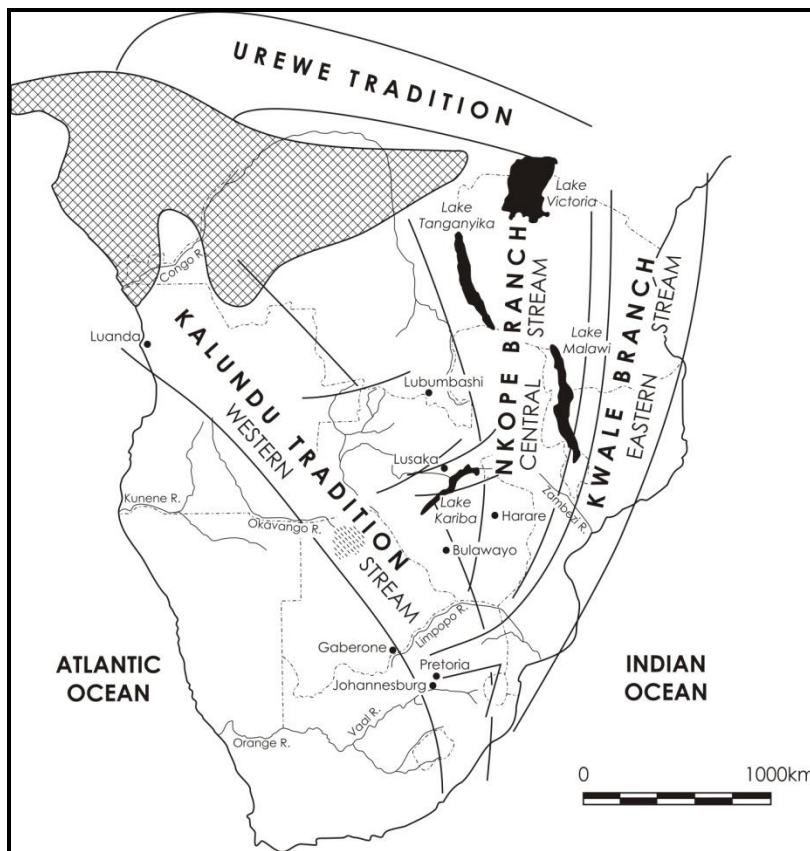


Figure 4: Movement of Bantu speaking farmers (Huffman 2007).

The first 1,000 years is called the Early Iron Age. Early Iron Age people made a living by mixed farming. They had the technology to work metals like iron. Existing evidence dates the Iron Age in southern Africa to the first millennium AD (Huffman, 2007). The site of Mzonjani, 15 km from Durban, is the oldest known Iron Age site in KwaZulu-Natal, dating to the 3rd Millennium AD (Huffman, 2007).

The area that was occupied by the Nguni speaking group of the Eastern Bantu language stream is characterised by settlement patterns defined as the Central Cattle Pattern (CCP) (Huffman, 2007). The Nguni ceramic sequence consists of the Blackburn, Moor Park and Nqabeni phases, although excavated pottery is seldom decorated and therefore complicates archaeological interpretation (Huffman 2007: 441, 443).

The earliest known type of stonewalling that characterises this settlement pattern (CCP) in the region is the Moor Park site, which dates from the 14th to 16th Centuries AD (Huffman, 2007). This type of stonewalling can be found in defensive positions on hilltops in the Midlands of KZN (Huffman, 2007) Archaeologists have concluded that the function of these structures was to serve mainly as defensive purposes (Huffman, 2007). Archaeologically, the Natal area was occupied by the Zulu people by AD 1050 (Huffman, 2007).

In the late 1400's, an Nguni group under the leadership of Dlamini settled in the Delagoa Bay area. By the late 1700's, the Dlamini clan moved into land settling on the banks of the Pongola River where it cuts through the Lebombo Mountains. An attempt was also made to occupy the area between the Pongola River and Magudu Hills (at that stage the area was under Ndwandwe rule), but they had to retreat back across the Pongola River (Bonner, 2002) (Fourie 2013).

Serious rivalry between the Ndwandwe under Zwide and the Ngwane (Swazi) under Sobhuza created a period of unrest and confrontation in the early 1800's. An attempt from Zwide to annex the grain fields on the south side of the Pongola River almost destroyed the Ngwane. These successive Ndwandwe attacks lead to the fleeing of the Ngwane to the far north (Bonner, 2002).

The Late Iron Age economy was based on agriculture and livestock. Both components were inextricably linked to cultural practices and even contributed to the evolution of other institutions. In the Nguni groups economic activities were divided along gender lines; men were closely associated with cattle and women with farming. It is believed that maize was introduced to northern KwaZulu-Natal via the Delagoa Bay trade network and the crop soon became widely cultivated. According to oral tradition, the Mthethwa first produced maize in the late 18th century (Huffman 2007: 453, 457).

Along with cattle and trade beads, (both used as currency for bride wealth); metal objects also became markers of wealth, status and power. Iron and copper ornaments (bangles, neck-and earrings) were worn to indicate social position and were also used in trade (Wylie 2006: 58, 59). Other metal artefacts which may appear in the archaeological record are iron spear points and hoes used for agriculture (very few have been found in context). It is interesting that the deliberate burial of numerous metal objects (mostly spearheads and hoes) seems to have been a common practice in Late Iron Age KwaZulu-Natal (Maggs 1991). This phenomenon is probably connected to the period of instability leading up to the Mfecane.

The Difaqane (Sotho), or Mfekane/Imfecane ("the crushing" in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820's until the late 1830's. (Berg 1999: 109-115) It came about in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka's Zulus to attack other tribes (Berg 1999: 14; 116-119).

In KwaZulu-Natal, this commenced in the early 1800's when the amaZulu were still under Senzangakona (Omer-Cooper, 1993).

The Mthethwa confederacy also arose in the 18th century as a consolidation of clans that formed part of the greater northern Nguni-speaking cultural group in southern Africa. Their ruling lineage (the Nyambose) originally settled between the Mfolozi and Mhlatuse rivers (Wylie 2006: 49).

Indian Ocean trade contributed to changes in the socio-political structures of many groups, including that of the Mthethwa: imported beads became part of bride-wealth/lobola currency, increased demand for meat and grain from east coast ships necessitated more control of agricultural labour, cattle-raids etc., and even influenced the evolution of the amabutho (age-set regiments) system. Ivory, hides, slaves, grain, and metal hoes were exchanged for incoming commodities such as beads and cloth (Mitchell & Whitelaw 2005: 228; Huffman 2007: 77-80). It was amid the ensuing power struggles between politically complex chiefdoms that the Mthethwa, Ndwandwe in the north and the Qwabe in the south emerged as prominent role-players.

Dingiswayo and the Rise of the Mthethwa

Chief Dingiswayo's Homestead Site (Oyengweni) is located approximately 24 km north of the study area and deserves further mention. Dingiswayo Godongwana kaJobe was born around 1770, a son of the Mthethwa chief Jobe. After a dispute with one of his brothers, he spent some time in exile among the Qwabe and Langeni people. Upon his father's death, he successfully challenged his brother Mawewe for the Mthethwa leadership and renamed himself Dingiswayo – 'The Wanderer' (<http://www.sahistory.org.za>; Wylie 2006: 51).

In his ambition to access the lucrative Delagoa Bay trade route he competed with the powerful Ndwandwe and Ngwane-Dlamini groups (Wylie 2006: 112). Although he may have occasionally resorted to violent means in pursuing this aim, Dingiswayo is recognized for using diplomacy and the assimilation of other chiefdoms (including the Zulu) to strengthen the Mthethwa powerbase.

Eldredge (1992: 31) asserts that state formation under Dingiswayo was a process of incorporation of people, not extermination. Dingiswayo is often credited with abolishing territorial based circumcision schools and instituting age-set regiments or amabutho (later perfected by Shaka); although it seems his father, Jobe had already organized two such regiments during his rule over the Mthethwa (Gump 1989: 62). The 19th century notion, propagated by Europeans, that Dingiswayo copied regimental organization from white men is no longer universally accepted (Wright 1978: 23). Nonetheless, an efficient militarized regiment system must have contributed in securing the loyalty of surrounding groups, widening the Mthethwa sphere of influence.

Dingiswayo is also well known for being instrumental in the rise of the Zulu nation by becoming Shaka's mentor and protector. Shaka, son of Senzangakhona (chief of the small Zulu clan) grew up with the Mthethwa and participated in their various military expeditions; he was apparently inducted into Dingiswayo's isiFazana regiment or ibutho. It was Dingiswayo who supported Shaka in assuming the Zulu chieftainship when the latter's father eventually died (Wylie 2006: 138; <http://www.sahistory.org.za>).

One of the bigger chiefdoms that Shaka conquered is the Ndwandwe chiefdom of Zwide kaLanga, which was situated north of Shaka's territory around kwaNongoma (Knight, 1998). Shaka managed to achieve his kingdom by strategically expanding the traditional *amabutho* system. The *amabutho* were the brigades of young men of similar age gathered together for a period of national service (Wright, 1991). The *amabutho* were quartered at large royal homesteads, *amakhandas* which were sited strategically above the surrounding country to guard against both outside attack and internal dissension, like the site of Moor Park. During the times of need, *amabutho* would be organised into *impi* to fight and protect the Zulu kingdom. The *amabutho*, organised into *impi*, would be sent out to attack and take over rival chiefdoms that were opposed to King Shaka's rule and in the process extend his monarchy.

Many oral traditions exist regarding Dingiswayo's death, considered to have taken place around 1817. Most allude to medicine or witchcraft used by his old foe Zwide of the Ndwandwe to gain power over him. What is known for certain is that Dingiswayo was taken to Zwide's main establishment, Nsingweni, where he was killed. Some reports say that he was decapitated (Wylie 2006: 202; <http://www.sahistory.org.za>). According to one oral history retold by James Stuart's informant Makuza, Zwide and his troops discuss the burial of Dingiswayo's body: "Tell us where we are to bury him'. ` Bury him at the Mahlabaneni hill. While some are digging, let others cut posts. When you have prepared them, fix them in the ground, build a fence right round the grave, so that no evil person will be able to come and cut open this chief for the purpose of killing the chief who lives.' " (Wylie 2006: 203).

It is believed that Dingiswayo's grave is located at the Oyengweni site but according to Mokhanya (2009: 2) the oral accounts vary to the extent that some believe the grave in fact belongs to his father Jobe (Pelser 2013).

The following extract from the EIA indicated the following heritage resources identified in the greater study area:

"The heritage specialist found that there are twenty heritage resources sites of significance which were examined and documented within the three Study Corridor options, as defined in the KwaZulu-Natal Heritage Act No 10 of 1997. These include ancestral graves associated with historical settlements. As is the case with all human remains, graves have high heritage significance. Cultural landscapes occur greatly on the sugar cane plantations. Stone Age open sites occur particularly in areas subject to incised erosion and donga formation.

Archaeology

Sites dating to the Early, Middle and Later Stone Age, and the Early and Later Iron Age have been previously recorded in the area north of Empangeni (Len Van Schalkwyk and Gavin Anderson, pers. Com, 2009). However, in so far as these archaeological layers are concerned, the area north of Empangeni is considered generally "disturbed" by later human activities, especially plantation farming. If any sites have survived they would be confined to the edge of rivers and streams that run through the area, and hilltops.

Cultural Landscape

The sugarcane plantations through which the transmission power line will be routed date back to the 1930s and 1940s. As such they are a historical Cultural Landscape carrying heritage significance for which possible adverse impacts must be considered. By their nature these elements are highly visible. Cultural landscapes are landforms and features that "represent the combined works of nature and man" and demonstrate "the evolution of human society and settlement over

time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external” (Operational Guidelines for the Implementation of the World Heritage Convention, 2005). The eucalyptus plantations located south of Nseleni and around Invubu substation date back to the 1970’s. As such they fall outside the 60 year threshold and the jurisdiction of Sections 34 and 33 of NHRA and Amafa Act respectively. The commercial benefits apart their introduction is linked to the development of the Richards Bay Harbour and the necessity to drain the coastal marshlands to control malaria (Debbie Whelan, pers. com. August 2009). Four types of cultural landscapes were identified in the area of study and their heritage significance assessed on the basis of age. “

The EIA also included information on spiritual sites:

“Spiritual Sites

Three sites with spiritual activities within Corridor 1 are connected. The first is a Shembe congregational site where a church building is under construction. The Shembe Church is of the African Pentecostal variety with its foundations in Zululand. It has earned international acclaim for its spectacular dances and doctrine which is a mixture of Christian teaching and Zulu culture. The homestead of the chief priest of the Church at Somopho is situated near the church and in the transmission corridor. In characteristic Shembe custom it is marked by a perimeter of white painted stones. Within the same area in addition to the church there are two more spiritual sites. The first situated near the Shembe Church is the site of public gatherings presided by the king and often to offer prayers in the event of misfortunes such as droughts. Traditional rainmaking ceremonies are held at the second site, and in recent times they have been presided over by a local charismatic female traditional healer called Nkwishiza.”

5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES

The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed power line the local extent of its impact necessitates a representative sample and special attention was given to the proposed tower positions. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance:

- » The unique nature of a site;
- » The integrity of the archaeological/cultural heritage deposits;
- » The wider historic, archaeological and geographic context of the site;
- » The location of the site in relation to other similar sites or features;
- » The depth of the archaeological deposit (when it can be determined/is known);
- » The preservation condition of the sites;
- » Potential to answer present research questions.

Furthermore, The National Heritage Resources Act (Act No 25 of 1999, Sec 3) distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

- » Its importance in/to the community, or pattern of South Africa's history;
- » Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- » Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- » Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- » Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- » Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- » Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- » Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- » Sites of significance relating to the history of slavery in South Africa.

5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and approved by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 8 of this report.

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

6. WALK THROUGH FINDINGS-DESCRIPTION OF SITES

This report deals with the heritage walk through of the proposed Invubu Theta power line. A track log of the areas covered is included in Annexure A. The power line, of approximately 40 km, starts at the planned Theta substation at tower No NV/MBE 01 and ends at the existing Invubu substation at tower No INV/MBE 81.

Although the vegetation is very thick on some portions of the power line where trees and high grass cover as well as sugar cane fields (Figure 4 & 5) limits archaeological visibility some portions of the power line have better visibility where the line traverses agricultural fields and pastures (Figure 6 & 7). It was however possible to visit all the towers physically or to get close enough to assess the towers visually. The study area consists of gently rolling grassland that is slightly undulating with several larger ridges and higher lying areas throughout the study area. Various rivers and streams cross the terrain with the major rivers being the Mazakana, Mvuzana and Nseleni.

Eight heritage features were recorded during the survey of the power line (Figure 8); these features were recorded and mapped numerically. For co-ordinates of the features please refer to Table 1. Recorded features consist of Middle Stone Age and Iron Age material, structures possibly older than 60 years, stone cairns and graves. Please refer to section 6.2 for a short description and significance rating of the sites.



Figure 5. Plantation.



Figure 6. Thick riverine bush.



Figure 7. General Site conditions.

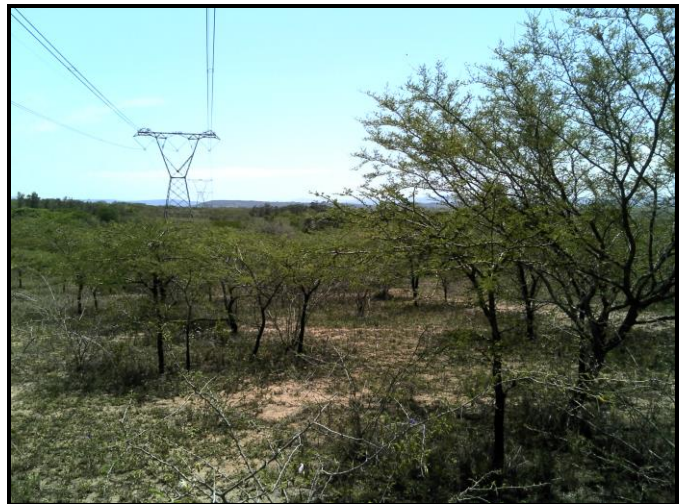


Figure 8. General Site conditions.

6.1. Site Distribution Map

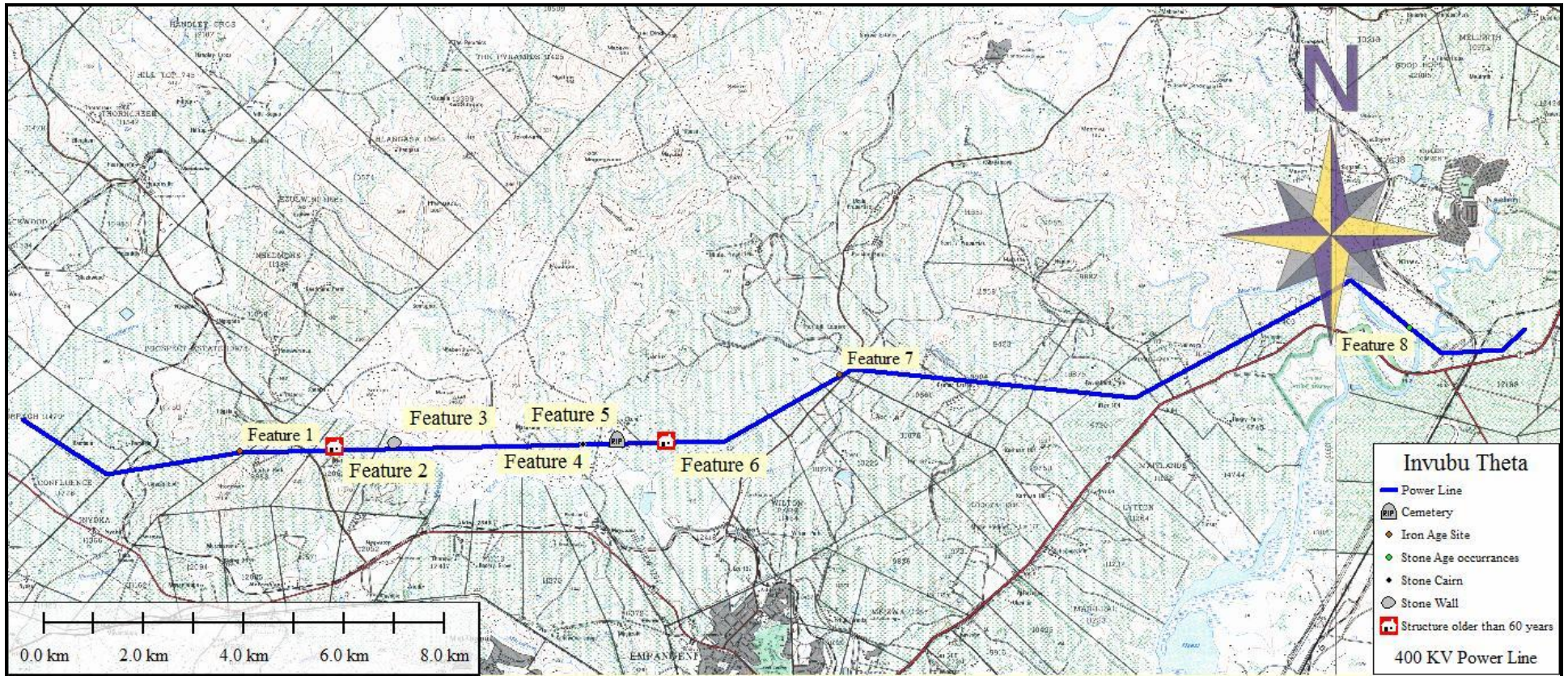


Figure 9: Site distribution map indicating the study area in blue.

Table 1: Identified heritage features with Coordinates

Feature	Period/Type site	Cultural Markers	Coordinate (accuracy 4 meters)	Impact
1	Iron Age	Undecorated ceramics	28° 42' 37.3069" S, 31° 48' 11.4695" E	Secondary impact during construction of tower INV/MBE 12
2	Modern/historical	Dwelling	28° 42' 34.0163" S, 31° 49' 12.1044" E	Direct impact during clearing of the corridor, and secondary impact by tower INV/MBE 17
3	Modern/historical	Ephemeral stone wall	28° 42' 32.1588" S, 31° 49' 51.3552" E	Possible secondary impact during corridor clearing.
4	Modern	Possible grave	28° 42' 32.4071" S, 31° 51' 52.5241" E	Possible secondary impact, during corridor clearing.
5	Modern/historical	Cemetery	28° 42' 30.0779" S, 31° 52' 14.9447" E To 28° 42' 29.9" S 31° 52' 15.9" E	Direct impact by corridor clearing and secondary impact by tower INV/MBE 30.
6	Modern/historical	Dwelling	28° 42' 30.5173" S, 31° 52' 46.3835" E	Direct impact by corridor clearing and tower INV/MBE 33.
7	Iron Age	Undecorated ceramics and slag	28° 41' 47.7671" S, 31° 54' 38.4949" E	Secondary impact by tower INV/MBE 45.
8	Stone Age	Flakes with faceted striking platforms	28° 41' 17.2932" S, 32° 00' 46.9512" E	Direct impact by corridor clearing and tower INV/MBE 74.

6.2. Site Descriptions

Feature 1 & 7. Iron Age

Feature 1 consist of a low density scatter (>2 per 2m²) of undecorated ceramics in a sugar cane field spread over an area of 8 X 8 meters. The ceramics are most probably being washed down from the hills located north and south of the recorded scatter. No other cultural material or features where recorded in this area. The recorded ceramics are located 40m from tower INV/MBE 12 (Figure 11).

Heritage significance: As the artefacts are not *in situ* the recorded feature is of low significance.

Field Rating: Generally Protected C (GP.C)

Feature 7 is also located in a sugar cane field on the crest of a rolling hill. Undecorated ceramics and a single piece of Iron Slag were recorded over an area of 20 x 30 meters. The recorded ceramics are located 26m north from tower INV/MBE 45 (Figure 12).

Heritage significance: Although the site has been ploughed it is possible that archaeological deposit might occur sub surface and the recorded feature is therefore of medium significance.

Field Rating: Generally Protected B (GP.B)



Figure 10. Artefacts from Feature 7.



Figure 11. General site conditions at Feature 1.

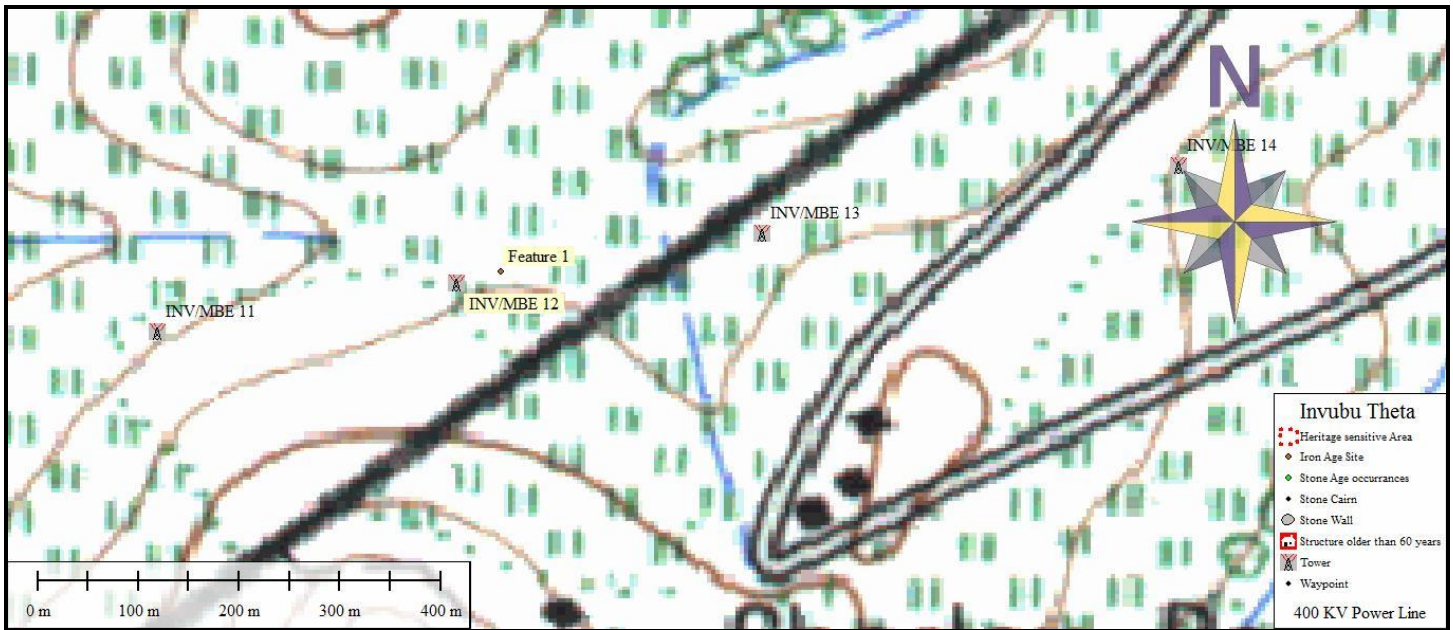


Figure 12: Feature 1 in relation to the proposed power line

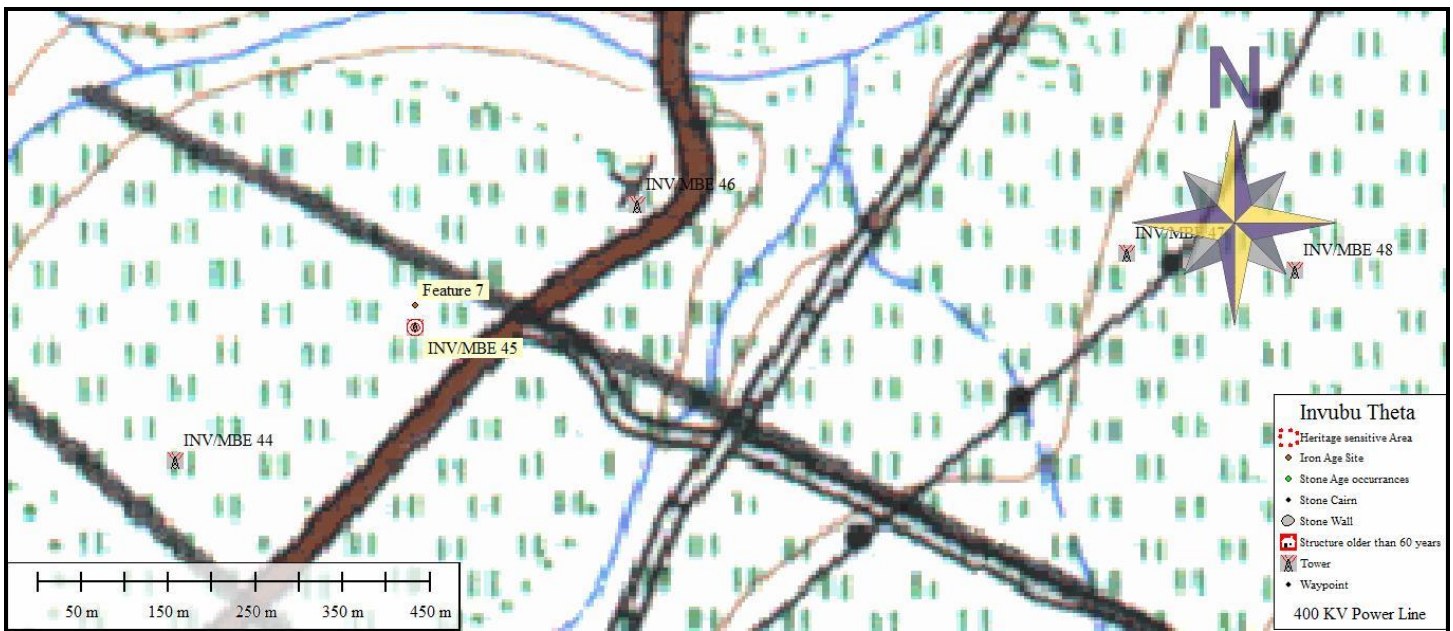


Figure 13: Feature 7 in relation to the proposed power line.

Feature 2 and 6. Dwellings

Feature 2 and 6 are both residential dwellings with outbuildings that could possibly be older than 60 years. It was not possible to gain access to these premises during the survey as these dwellings are all occupied. None of these dwellings will be directly impacted on by the proposed towers (Figure 17 & 18) but they are located within the power line servitude and will therefore have to be demolished.

Heritage significance: These features are of low heritage value but might be older than 60 years in which case they are protected by legislation.

Field Rating: Generally Protected B (GP.B)



Figure 14. Outbuilding at feature 2.



Figure 15. Modern residential dwellings at feature 2.



Figure 16. Main dwelling at feature 6.



Figure 17. Outbuildings at feature 6.

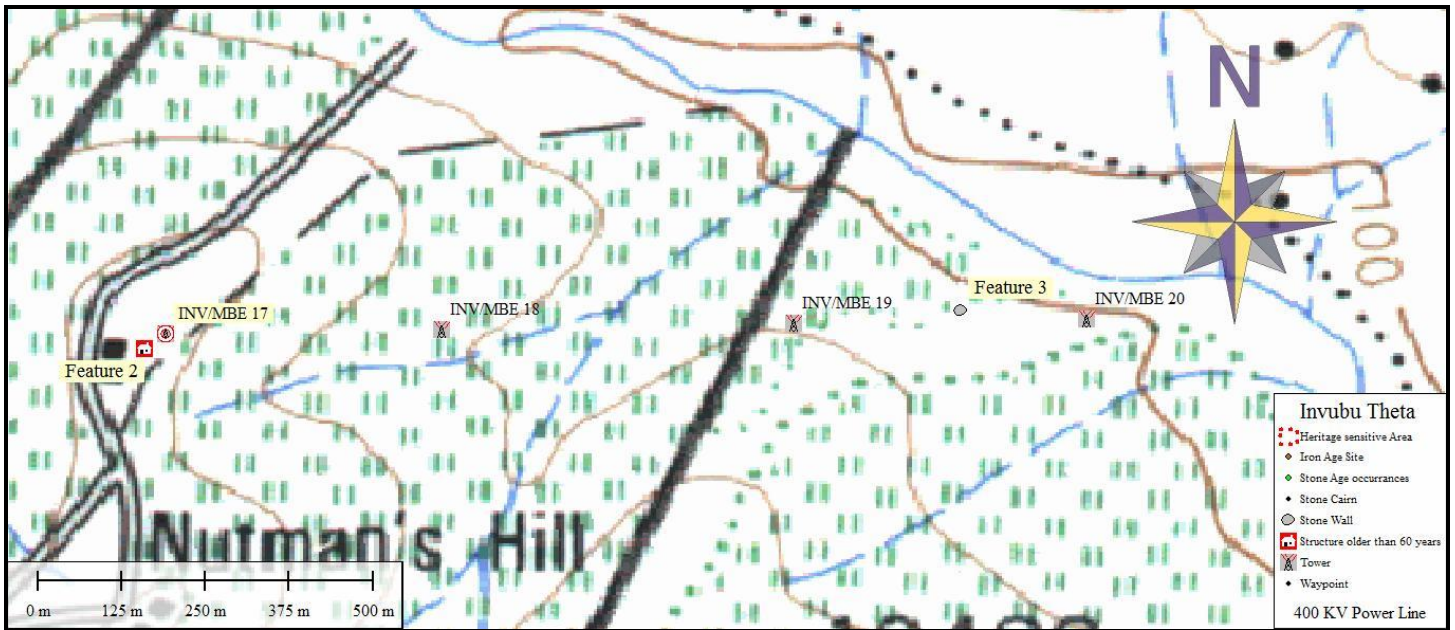


Figure 18: Feature 2 and 3 in relation to the proposed power line

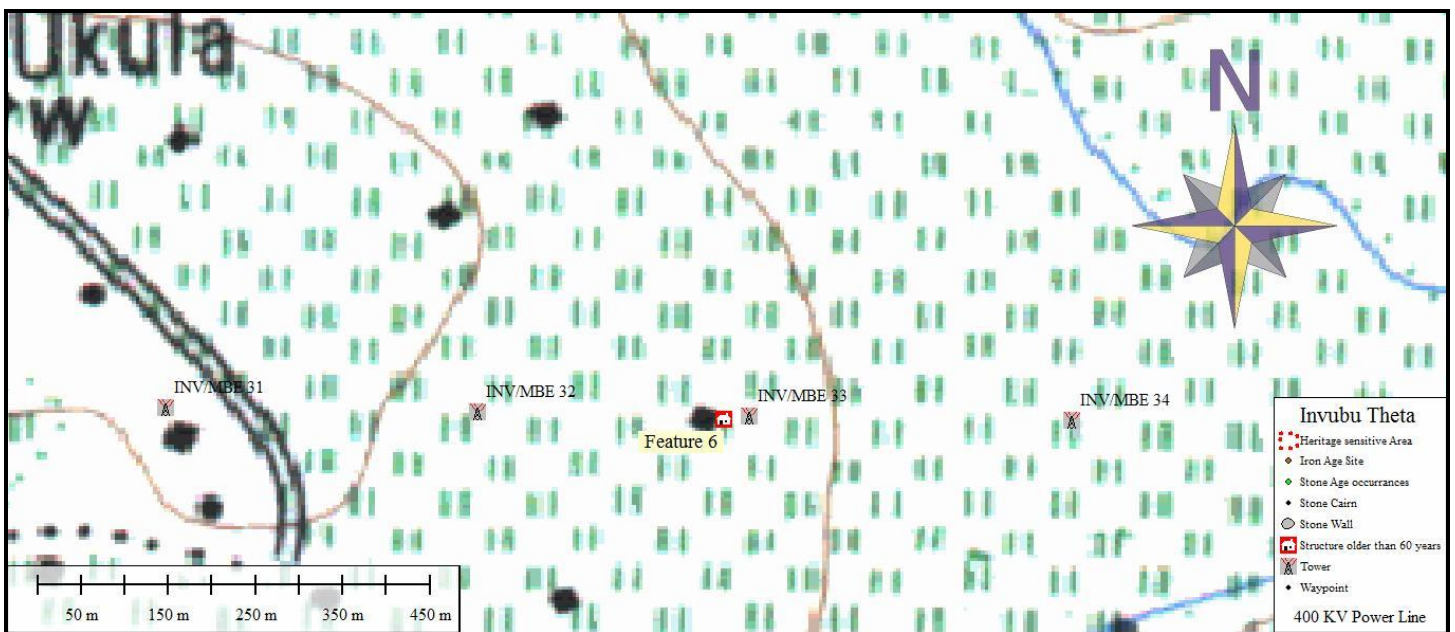


Figure 19: Feature 6 in relation to the proposed power line

Feature 3. Ephemeral stone wall

This is the location of an ephemeral dry stone wall located on a small ridge. The site is highly overgrown and it is not possible to determine site lay out and it is therefore uncertain if this site dates to the Late Iron Age, historical or recent past. The wall seems to be circular and measures approximately 20 cm high 50 cm wide. No cultural material was noted in this area but could be a result of the low archaeological visibility in the area. The site will not be directly impacted by the proposed construction of any tower but bush clearing during the stringing phase might impact on the site (figure 18).

Heritage significance: As the time period to the site is unknown it is given a low to medium significance rating until more information become available.

Field Rating: Generally Protected B (GP.B)



Figure 20: Low stone wall

Feature 4 and 5 - Graves

Feature 4 consists of an elongated feature bordered with cement bricks in front of a house. The Eskom engineer considered that this feature could possibly represent a grave. The feature is roughly aligned east to west. The site is not going to be impacted on by any tower but might be impacted during the construction phase (Figure 23).

Feature 5 consists of two sets of graves located 13 meters apart. The first set consists of at least 2 graves next to a large bush and more graves could occur here. The second set consists of at least two graves (although more could be located here). All the graves are aligned north south and would be directly impacted on by construction activities and tower INV/MBE 30 (Figure 23). Grave sites are of high social significance.

Heritage significance: Grave sites are of high social significance.

Field Rating: Generally Protected A (GP.A)



Figure 21: Possible grave at feature 4



Figure 22: Feature 5 viewed from the south



Figure 23. Retaining wall in front of small shelter

Feature 8 – Middle Stone Age occurrence

Isolated Middle Stone Age artefacts are scattered in very low densities at tower INV/MBE 74 (less than 3 artefacts per 2 m²) over an area of 10 x 15 meters in an agricultural field. The recorded artefacts are located on the banks of the Nseleni River and the artefacts show signs of weathering possibly to secondary deposition by water. Artefacts consist mostly of large flakes without secondary retouch and blades with faceted striking platforms. Raw material consists entirely of quartzite. The recorded artefacts are of low significance with a secondary impact foreseen on the sites during the construction tower INV/MBE 74.

Heritage significance: Since these artefacts are not in situ and are scattered too sparsely to be of any significance apart from noting their presence, which has been done so in this report they are of Low significance.

Field Rating: Generally Protected C (GP.C)



Figure 24. Dorsal and ventral views of artefacts



Figure 25. Environment at feature 8

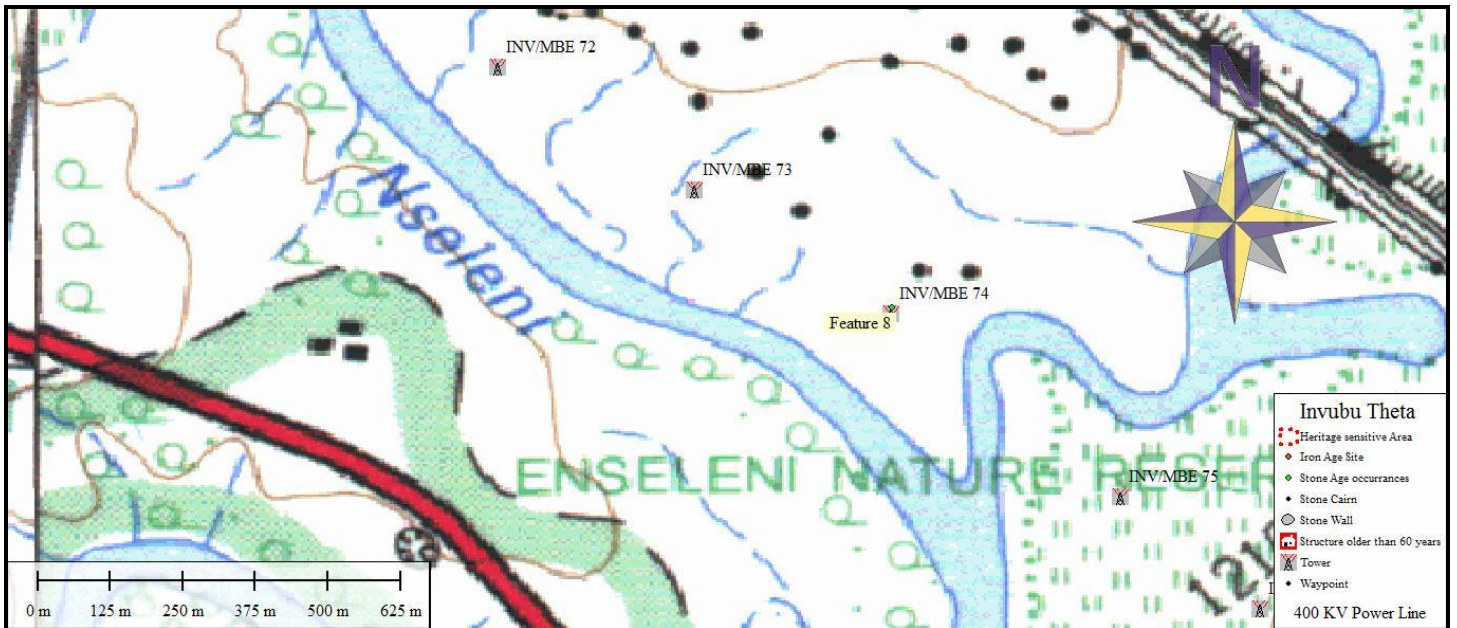


Figure 26: Feature 8 in relation to the proposed power line.

7. POTENTIAL IMPACT

7.1. Pre-Construction phase:

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of road infrastructure needed for the construction phase. These activities can have a negative and irreversible impact on heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

7.2. Construction Phase

During this phase the impacts and effects are similar in nature but more extensive than the pre-construction phase. These activities can have a negative and irreversible impact on all of the recorded heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

7.3. Operation Phase:

No impact is envisaged for the recorded heritage resources during this phase.

8. CONCLUSIONS AND RECOMMENDATIONS

The impacts to heritage resources by the proposed development are considered to be low as the correct mitigation measures will nullify impacts on the heritage resources. Eight heritage features were recorded during the walk through for the project. The recorded features consist of Middle Stone Age (MSA) material, Iron Age material, structures possibly older than 60 years and graves. Direct impact of the recorded features by tower positions were minimised where possible during the walkthrough where towers were micro sited to avoid recorded features but a secondary impact is possible during the construction phase (clearing of power line corridor) of the project.

Therefore some recommendations are made to protect the sites from accidental damage during the construction phase of the project and are further discussed here. As construction camps etc. was unknown at the time of the survey recommendations are made to protect recorded features from accidental damage during the construction phase of the project and management actions are put forth below and summarised in table 2.

- Feature 1: Ceramic scatter. The recorded feature is of low significance and no further action is necessary.
- Feature 2 & 6: Structures. It is unknown at this stage if these structures are protected under the 60 year clause of section 34 of the NHRA. It is recommended that the age of the structures are determined and if older than 60 years they must be assessed by a conservation architect who will make appropriate recommendations regarding the process to be followed before they can be demolished.
- Feature 3: Ephemeral stone wall. The recorded feature is located on the edge of the servitude. If bush clearing for the servitude is planned in this area the feature must be demarcated with danger tape and an archaeologist must supervise bush clearing to look for other stone walled features.
- Feature 4 & 5 Graves/cemeteries. It is recommended that the micro adjustments of the power line should be made to ensure at least a 20 m buffer zone around any graves and cemeteries. The cemetery must be demarcated to avoid accidental damage to the site during the construction phase. It is recommended that the social team should consult with family members to determine tribal preferences regarding the fact that a power line will span over ancestral graves. Should this be considered a concern it is recommended that a micro deviation of the line must be made.
- Feature 7: Iron Age: the recorded feature is located approximately 27 meters from the closest tower (INV/MBE 45). Earth works in this area must be monitored by an archaeologist to look for subsurface finds and archaeological deposit. If any occur this will have to be mitigated with the necessary permits from AMAFA.
- Feature 8: Stone Age: It is recommended that earthworks at tower INV/MBE 74 are monitored by an archaeologist to look for subsurface finds and archaeological deposit. If any occur this will have to be mitigated with the necessary permits from AMAFA.
- It is recommended that the social team engage with the local community regarding the presence of graves in the proposed corridor. Where dwellings are to be relocated in the villages, as the graves of still born babies might occur in these areas.
- The HIA for the project mentioned the possible impact of the project on the cultural landscape consisting of sugar cane plantations. The impact of the proposed power line on this landscape is considered to be low as it follows an existing power line for a large section. Other linear

developments like roads and railway lines also impacted on the landscape. Visual impacts to scenic routes and sense of place are also considered to be low as the line follows an existing power line.

- A visual impact assessment was also commissioned for the project and no further mitigation is recommended for this aspect from a heritage point of view.

Due to the subsurface nature of archaeological material and unmarked graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find and therefor chance find procedures should be put in place as part of the EMP. A short summary of chance find producers is discussed below.

Chance finds procedure

This procedure applies to Eskom's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the construction, operations or closure phases of this project, any person employed by Eskom, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on mine operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

Table 2: Management actions

Feature	Significance	Impact	Management Actions
1	GP C Low Heritage Significance	Secondary impact during construction of tower INV/MBE 12	No Management Actions required.
2	GP B Medium Heritage Significance	Direct impact during construction, and secondary impact by tower INV/MBE 17	It is recommended that the age of the structures are determined and if older than 60 years they must be assessed by a conservation architect who will make appropriate recommendations regarding the process to be followed before they can be demolished.
3	GP B Medium Heritage Significance	Possible secondary impact, during construction	The recorded feature is located on the edge of the servitude. If bush clearing for the servitude is planned in this area the feature must be demarcated with danger tape and an archaeologist must supervise bush clearing to look for other stone walled features.
4	GP A Medium to High Significance	Possible secondary impact, during construction.	It is recommended that least a 20 m buffer zone should be demarcated around any graves and cemeteries. The cemetery must be demarcated to avoid accidental damage to the site during the construction phase. It is recommended that the social team should consult with family members to determine tribal preferences regarding the fact that a power line will span over ancestral graves. Should this be considered a concern it is recommended that a micro deviation of the line must be made.
5	GP A Medium to High Significance	Direct impact by construction and tower INV/MBE 30.	It is recommended that least a 20 m buffer zone should be demarcated around any graves and cemeteries. The cemetery must be demarcated to avoid accidental damage to the site during the construction phase. It is recommended that the social team should

			consult with family members to determine tribal preferences regarding the fact that a power line will span over ancestral graves. Should this be considered a concern it is recommended that a micro deviation of the line must be made.
6	GP B Medium Heritage Significance	Direct impact by construction and tower INV/MBE 33.	It is recommended that the age of the structures are determined and if older than 60 years they must be assessed by a conservation architect who will make appropriate recommendations regarding the process to be followed before they can be demolished.
7	GP B Medium Heritage Significance	Secondary impact by tower INV/MBE 45.	Earth works in this area must be monitored by an archaeologist to look for subsurface finds and archaeological deposit. If any occur this will have to be mitigated with the necessary permits from AMAFA.
8	GP C Low Heritage Significance	Direct impact by construction and tower INV/MBE 74.	It is recommended that earthworks at tower INV/MBE 74 are monitored by an archaeologist to look for subsurface finds and archaeological deposit. If any occur this will have to be mitigated with the necessary permits from AMAFA.

If the recommendations as made in section 8 of this report are adhered to (subject to approval from SAHRA) there is from an archaeological point of view no reason why the proposed project should not proceed.

8.1. Reasoned opinion

From a heritage perspective the proposed project is acceptable. If the above recommendations are adhered to and based on approval from SAHRA, HCAC is of the opinion that the development can continue as the impact of the development on heritage will not impact negatively on the archaeological record of Mpumalanga. If during the pre-construction phase or during construction, any archaeological finds are made (e.g. graves, stone tools, and skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds. Due to the subsurface nature of archaeological material and graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded, but can be easily mitigated by preserving the sites *in-situ* within the development.

9. PROJECT TEAM

Jaco van der Walt, Project Manager and Archaeologist

10. STATEMENT OF COMPETENCY

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also acknowledged by SAHRA and AMAFA.

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique, DRC and Tanzania; having conducted more than 400 AIAs since 2000.

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ANNEXURE A

Track log of areas covered – power lines in blue and track logs in black

