



Prepared by





ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE UPPER MHLAHLANE WATER SUPPLY AUGMENTATION PROJECT, OR TAMBO DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE

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OR Tambo District Municipality (ORTDM)
AGES Eastern Cape

Compiled by:

Nelius Kruger (BA, BA Hons. Archaeology Pret.)

*GAUTENG PROVINCE: The Village Office Park (Block E),309 Glenwood Road, Pretoria 0081, Postnet no 74,
Private Bag X07, Arcadia, 0007 Tel: +27-12 751 2160 Fax: +27 (0) 86 607 2406 www.ages-group.com*

*Offices: Eastern Cape Gauteng Limpopo Province Namibia North-West Province Western Cape Zimbabwe
AGES Board of Directors: SJ Pretorius JA Myburgh JJP Vivier JH Botha H Pretorius THG Ngoepe SM Haasbroek R Crosby
JC Vivier FN de Jager CJH Smit AS Potgieter AGES Gauteng Directors: JJP Vivier JC Vivier E van Zyl M Grobler*



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DECLARATION

I, Nelius Le Roux Kruger, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the Upper Mhlahlane Water Supply Augmentation Project in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.



SIGNATURE OF SPECIALIST

Company: AGES Gauteng (Pty) Ltd.

Date: 15 June 2013



NOTATIONS AND TERMS

Absolute dating:

Absolute dating provides specific dates or range of dates expressed in years.

Archaeology:

The study of the human past through its material remains.

Archaeological record:

The archaeological record minimally includes all the material remains documented by archaeologists. More comprehensive definitions also include the record of culture history and everything written about the past by archaeologists.

Artefact:

Entities whose characteristics result or partially result from human activity. The shape and other characteristics of the artifact are not altered by removal of the surroundings in which they are discovered. In the southern African context examples of artefacts include potsherds, iron objects, stone tools, beads and hut remains.

Assemblage:

A group of artefacts recurring together at a particular time and place, and representing the sum of human activities.

¹⁴C or radiocarbon dating:

The ¹⁴C method determines the absolute age of organic material by studying the radioactivity of carbon. It is reliable for objects not older than 70 000 years by means of isotopic enrichment. The method becomes increasingly inaccurate for samples younger than ±250 years.

Ceramic Facies:

In terms of the cultural representation of ceramics, a facies is denoted by a specific branch of a larger ceramic tradition. A number of ceramic facies thus constitute a ceramic tradition.

Ceramic Tradition:

In terms of the cultural representation of ceramics, a series of ceramic units constitutes as ceramic tradition.

Context:

An artefact's context usually consists of its immediate *matrix*, its *provenience* and its *association* with other artefacts. When found in *primary context*, the original artefact or structure was undisturbed by natural or human factors until excavation and if in *secondary context*, disturbance or displacement by later ecological action or human activities occurred.

Culture:

A contested term, "culture" could minimally be defined as the learned and shared things that people have, do and think.

Cultural Heritage Resource:

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

Cultural landscape:

A cultural landscape refers to a distinctive geographic area with cultural significance.

Cultural Resource Management (CRM):

A system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation designed to safeguard the past.

Ecofact:

Non-artifactual material remains that has cultural relevance which provides information about past human activities. Examples would include remains or evidence of domesticated animals or plant species.

Excavation:

The principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of the deposits of soil and the other material covering and accompanying it.

Feature:

Non-portable artifacts, in other words artifacts that cannot be removed from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features

GIS:

Geographic Information Systems are computer software that allows layering of various types of data to produce complex maps; useful for predicting site location and for representing the analysis of collected data within sites and across regions.

Historical archaeology:

Primarily that aspect of archaeology which is complementary to history based on the study of written sources. In the South African context it concerns the recovery and interpretation of relics left in the ground in the course of Europe's discovery of South Africa, as well as the movements of the indigenous groups during, and after the "Great Scattering" of Bantu-speaking groups – known as the *mfecane* or *difaqane*.

Impact: A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

Iron Age:

Also known as "Farmer Period", the "Iron Age" is an archaeological term used to define a period associated with domesticated livestock and grains, metal working and ceramic manufacture.

Lithic:

Stone tools or waste from stone tool manufacturing found in on archaeological sites.

Management / Management Actions: Actions – including planning and design changes - that enhance benefits associated with a proposed development, or that avoid, mitigate, restore, rehabilitate or compensate for the negative impacts.

Matrix:

The material in which an artefact is situated (sediments such as sand, ashy soil, mud, water, etcetera). The matrix may be of natural origin or human-made.

Megalith:

A large stone, often found in association with others and forming an alignment or monument, such as large stone statues.

Midden:

Refuse that accumulates in a concentrated heap.

Microlith:

A small stone tool, typically knapped of flint or chert, usually about three centimetres long or less.

Monolith:

A geological feature such as a large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within, a monument or site.

Oral Histories:

The historical narratives, stories and traditions passed from generation to generation by word of mouth.

Phase 1 CRM Assessment:

An Impact Assessment which identifies archaeological and heritage sites, assesses their significance and comments on the impact of a given development on the sites. Recommendations for site mitigation or conservation are also made during this phase.

Phase 2 CRM Study:

In-depth studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required. Mitigation / Rescue involves planning the protection of significant sites or sampling through excavation or collection (in terms of a permit) at sites that may be lost as a result of a given development.

Phase 3 CRM Measure:

A Heritage Site Management Plan (for heritage conservation), is required in rare cases where the site is so important that development will not be allowed and sometimes developers are encouraged to enhance the value of the sites retained on their properties with appropriate interpretive material or displays.

Prehistoric archaeology:

That aspect of archaeology which concerns itself with the development of humans and their culture before the invention of writing. In South Africa, prehistoric archaeology comprises the study of the Early Stone Age, the Middle Stone Age and the greater part of the Later Stone Age and the Iron Age.

Probabilistic Sampling:

A sampling strategy that is not biased by any person's judgment or opinion. Also known as statistical sampling, it includes systematic, random and stratified sampling strategies.

Provenience

Provenience is the three-dimensional (horizontal and vertical) position in which artefacts are found. Fundamental to ascertaining the provenience of an artefact is *association*, the co-occurrence of an artefact with other archaeological remains; and *superposition*, the principle whereby artefacts in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.

Random Sampling:

A probabilistic sampling strategy whereby randomly selected sample blocks in an area are surveyed. These are fixed by drawing coordinates of the sample blocks from a table of random numbers.

Relative dating:

The process whereby the relative antiquity of sites and objects are determined by putting them in sequential order but not assigning specific dates.

Remote Sensing:

The small or large-scale acquisition of information of an object or phenomenon, by the use of either recording or real-time sensing device(s) that is not in physical or intimate contact with the object (such as by way of aircraft, spacecraft or satellite). Here, ground-based geophysical methods such as Ground Penetrating Radar and Magnetometry are often used for archaeological imaging.

Rock Art Research:

Rock art can be "decoded" in order to inform about cultural attributes of prehistoric societies, such as dress-code, hunting and food gathering, social behaviour, religious practice, gender issues and political issues.

Scoping Assessment: The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.

Sensitive:

Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

Site (Archaeological):

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity. These include surface sites, caves and rock shelters, larger open-air sites, sealed sites (deposits) and river deposits. Common functions of archaeological sites include living or habitation sites, kill sites, ceremonial sites, burial sites, trading, quarry, and art sites,



Slag:

The material residue of smelting processes from metalworking.

Stone Age:

An archaeological term used to define a period of stone tool use and manufacture.

Stratigraphy:

This principle examines and describes the observable layers of sediments and the arrangement of strata in deposits

Stratified Sampling:

A probabilistic sampling strategy whereby a study area is divided into appropriate zones – often based on the probable location of archaeological areas, after which each zone is sampled at random.

Systematic Sampling:

A probabilistic sampling strategy whereby a grid of sample blocks is set up over the survey area and each of these blocks is equally spaced and searched.

Tradition:

Artefact types, assemblages of tools, architectural styles, economic practices or art styles that last longer than a phase and even a horizon are describe by the term *tradition*. A common example of this is the early Iron Age tradition of Southern Africa that originated ± 200 AD and came to an end at about 900 AD.

Trigger: A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an *issue* and/or potentially significant *impact* associated with that proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement.

Tuyère:

A ceramic blow-tube used in the process of iron smelting / reduction.

LIST OF ABBREVIATIONS

Abbreviation	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
K2/Map	K2/Mapungubwe Period
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MRA	Mining Rights Application
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

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1 EXECUTIVE SUMMARY

This report details the results of an Archaeological Impact Assessment (AIA) study in the Mhlahlane area, west of Mthatha in the Eastern Cape Province. The assessment has been requested by the OR Tambo District Municipality, subject to the Upper Mhlahlane Water Supply Augmentation Project. The project comprises the construction of a bulk water supply pipeline, reticulation lines, a command reservoir and pump stations in the area. The report includes background information on the area's archaeology, its representation in southern Africa, and the history of the larger area under investigation, survey methodology and results as well as heritage legislation and conservation policies. A copy of the report will be supplied to the South African Heritage Resources Agency (SAHRA) and recommendations contained in this document will be reviewed in order to consider the conservation priority of sites located in the area.

Limited academic archaeological and historical studies have been conducted in this section of the Eastern Cape. However, the area encompasses a rich and diverse archaeological landscape, representative of most phases of human and cultural development in southern Africa. Similarly, a large number of areas of archaeological and heritage potential were located during the AIA survey which focused on surface areas across a total of approximately 32km along infrastructure lines proposed for the Water Supply Augmentation Project.

Palaeontology:

Since the palaeontological sensitivity of rock units within the study area is generally low the impact significance of the proposed prospecting activities as far as fossil heritage is concerned, is likely to be small. However, it is recommended that the general landscape be closely monitored during construction, in order not to disturb undetected palaeontological remains. Should fossil remains such as fossil fish, reptiles or vitrified wood be exposed during construction, a suitably qualified palaeontologist should be consulted in order to establish the significance, and provide management measures for such resources. These objects should be carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately.

Historical/ Colonial Period:

Two poorly preserved settlement areas incorporating the remains of homesteads and cattle byres dating to the Historical Period (**Site HP01 & HP02**) were identified in the study area. The sites are of medium significance and it is recommended that the structures be carefully documented and the provenance of the sites be established by means of a desktop study and social consultation and participation, if the sites were to be impacted on by the proposed road upgrade. If this were to be the case, a destruction permit from the relevant heritage resources authority (SAHRA) would be mandatory.

Graves:

At least 82 separate burial grounds, containing a large number of graves were identified along proposed routes for reticulation lines and other infrastructure. In all cases the graves, dressed with stone, marble, brick and tile structures occur alongside homesteads and cattle kraal structures or in crop fields. These sites are of high heritage significance and require special management attention. It is primarily recommended that the suggested reticulation lines be rerouted in order to avoid the graves. In addition, a conservation buffer zone of at least 10m around the graves, as well as the fencing off of all cemeteries and graves are recommended. However, should the graves or the proposed 10m buffer zone be impacted in any way by the planned activities, full grave relocations are recommended for these burial grounds. This measure should be undertaken by a qualified

archaeologist, and in accordance with relevant legislation and subject to any local and regional provisions and laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials. **As burial locations in this area follow a general (and fairly common) pattern where graves occur within the context of homestead complexes, utmost care should be taken during construction in occupation areas, not to disturb previously undetected burials.**

It is essential that cognisance be taken of the larger archaeological landscape of the area in order to avoid the destruction of previously undetected heritage sites. Here, care should be taken around rock faces and outcrops in the larger landscape, as rock art is known to occur on these outcrops. Water sources such as drainage lines and rivers should also be regarded as potentially sensitive in terms of possible Stone Age deposits. The possible existence of Historical Period resources deriving from the area's more recent history should also be considered. Graves and cemeteries generally occur within settlements, often around homesteads and utmost care should be taken not to disturb these high risk heritage resources as they involve complex intrinsic social and ritual attributes within the community.

Generally, a careful watching brief monitoring process is recommended for all stages of the project, specifically around heritage sensitive areas i.e. MSA scatters, historical period structures and graves. Should any subsurface palaeontological, archaeological or historical material be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately

This report details the methodology, limitations and recommendations relevant to these heritage areas, as well as areas of proposed development. It should be noted that mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment (e.g. uncovered during the construction process).

2 BACKGROUND

2.1 Scope and Motivation

AGES was appointed by the OR Tambo District Municipality (ORTDM) for an Archaeological Impact Assessment (AIA) Study for the proposed Upper Mhlahlane Water Supply Augmentation Project. The rationale of the study was to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance; to consider the impact of the proposed project on such heritage resources, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

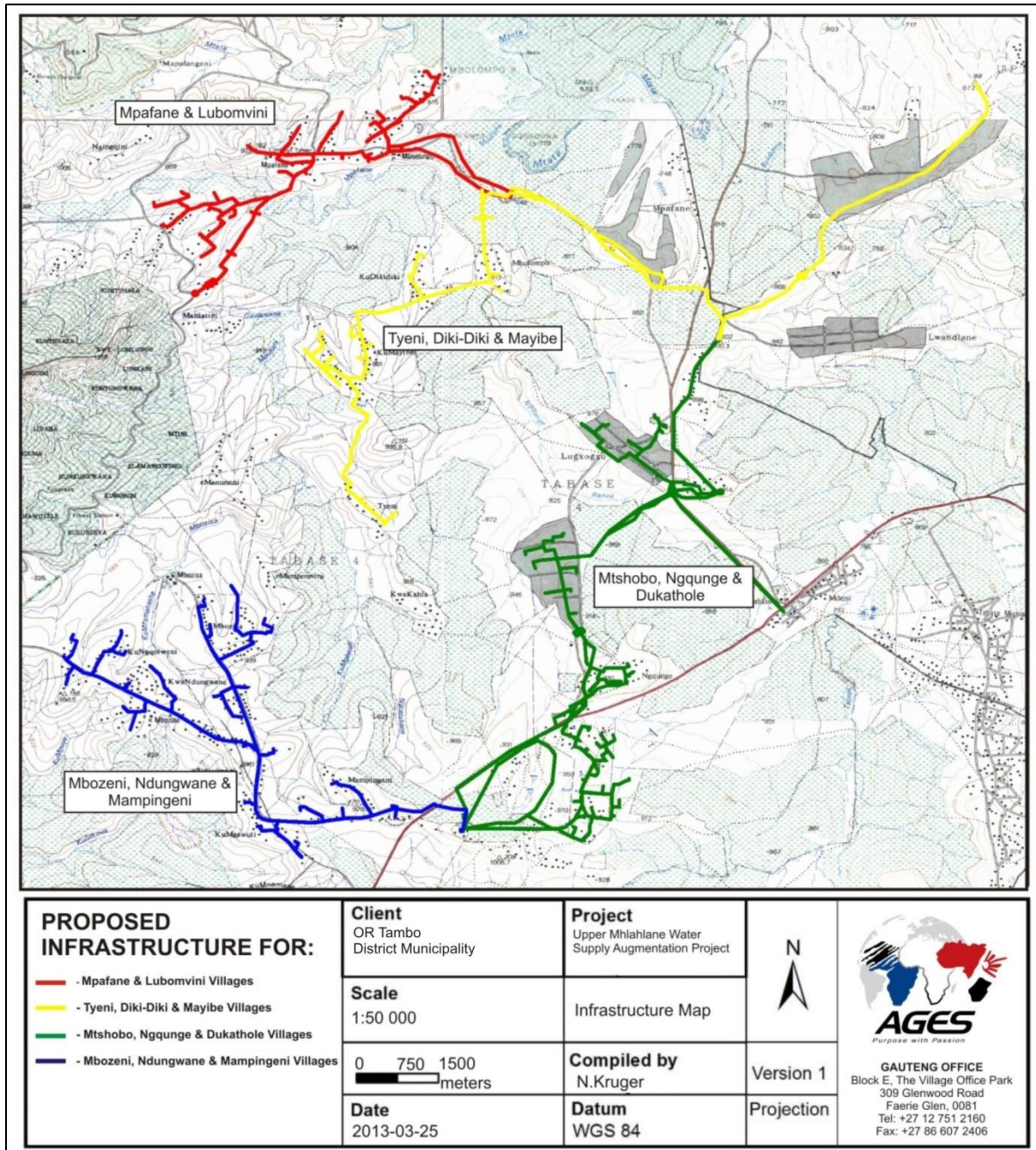


Figure 2-1: Infrastructure map of the Upper Mhlahlane Water Supply Augmentation Project.

2.2 Project Direction

AGES's expertise ensures that all projects be conducted to the highest international ethical and professional standards. As archaeological specialist for AGES, Mr Neels Kruger acted as field director for the project; responsible for the assimilation of all information, the compilation of the final AIA report and recommendations in terms of heritage resources on the demarcated project areas. Mr Kruger is an accredited archaeologist and Culture Resources Management (CRM) practitioner with the Association of South African Professional Archaeologists (ASAPA), a member of the Society for Africanist Archaeologists (SAFA) and the Pan African Archaeological Association (PAA) as well as a Master's Degree candidate in archaeology at the University of Pretoria.

2.3 Project Brief

The Upper Mhlahlane Water Supply Augmentation Project comprises the construction of a Bulk Water Supply Pipeline across various villages in the area, connecting a number of command reservoirs. In addition, a large number of smaller reticulations lines will supply water to homesteads and other areas across the Mpafane, Lubomvini, Tyeni, Diki-Diki, Mayibe, Mtshobo, Ngqunge, Dukathole, Mbozeni, Ndungwane and Mampingeni Villages (See Figures 2-2 to 2-5).

2.4 Terms of Reference

Heritage specialist input in Environmental Impact Assessment (EIA) processes is essential to ensure that through the management of change, development conserves our heritage. Heritage specialist input in EIA processes can play a positive role in the development process by enriching an understanding of the past and its contribution to the present. It is also a legal requirement for certain categories of development defined in the relevant heritage legislation, which may have an impact on heritage resources.

Thus, EIAs should, in all cases, include the assessment of Heritage Resources. The heritage component of the EIA is provided for in the **National Environmental Management Act, (Act 107 of 1998)** and endorsed by section 38 of the **National Heritage Resources Act (NHRA - Act 25 of 1999)**. In addition, the NHRA protects all structures and features older than 60 years (see Section 34), archaeological sites and material (see Section 35) and graves as well as burial sites (see Section 36). The objective of this legislation is to enable and to facilitate developers to employ measures to limit the potentially negative effects that the development could have on heritage resources.

Based hereon, this project functioned according to the following **terms of reference** for heritage specialist input:

- *Provide a detailed description of all archaeological artefacts, structures (including graves) and settlements which may be affected, if any.*
- *Assess the nature and degree of significance of such resources within the area.*
- *Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;*
- *Assess any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.*
- *Propose possible heritage management measures provided that such action is necessitated by the development.*
- *Liaise and consult with the South African Heritage Resources Agency (SAHRA).*

ORTDM Upper Mhlahlane Water Supply Augmentation Project: Archaeological Impact Assessment Report

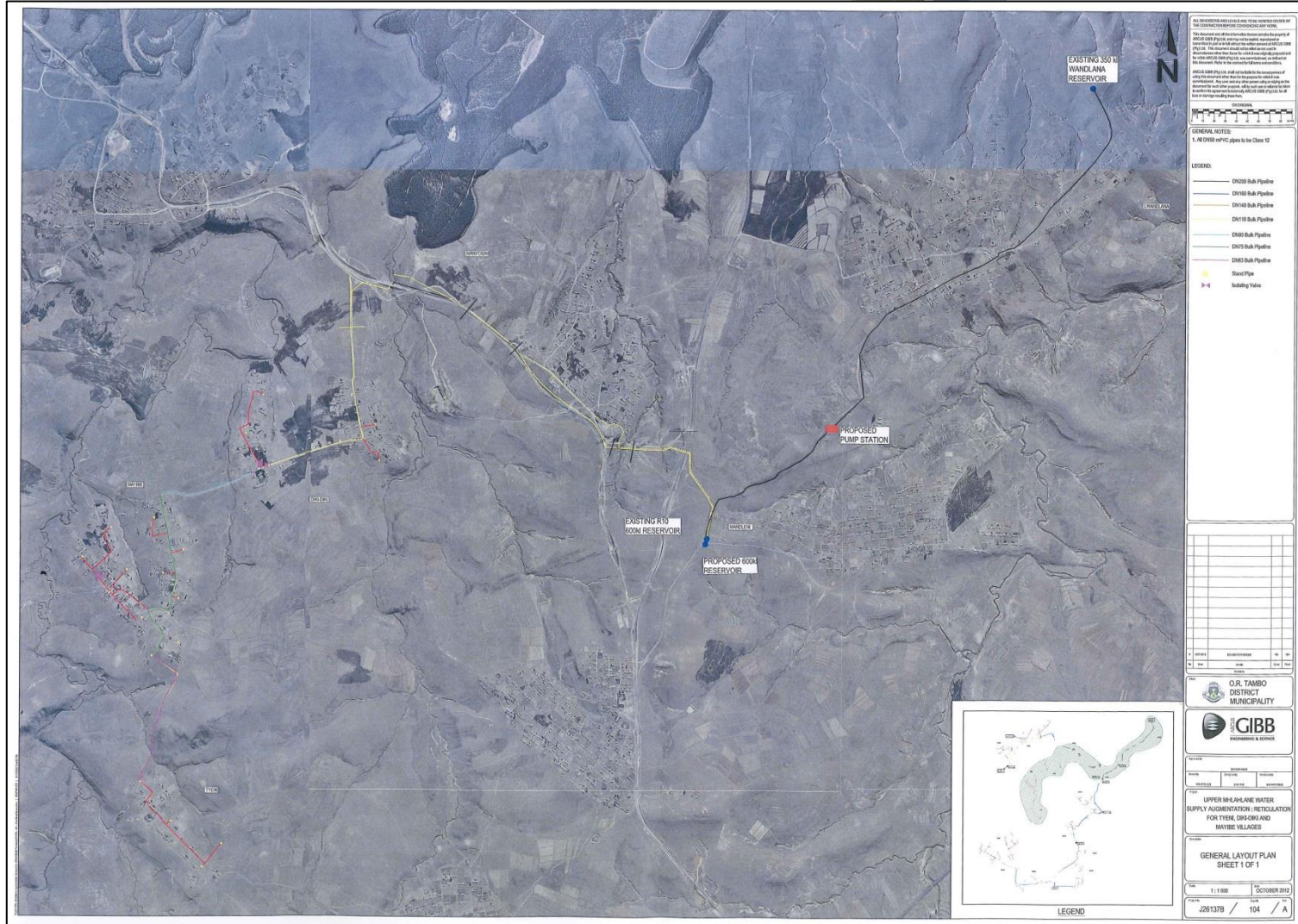


Figure 2-3: Infrastructure map of the Upper Mhlahlane Water Supply Augmentation Project for the Tyeni, Diki-Diki & Maybe Villages.

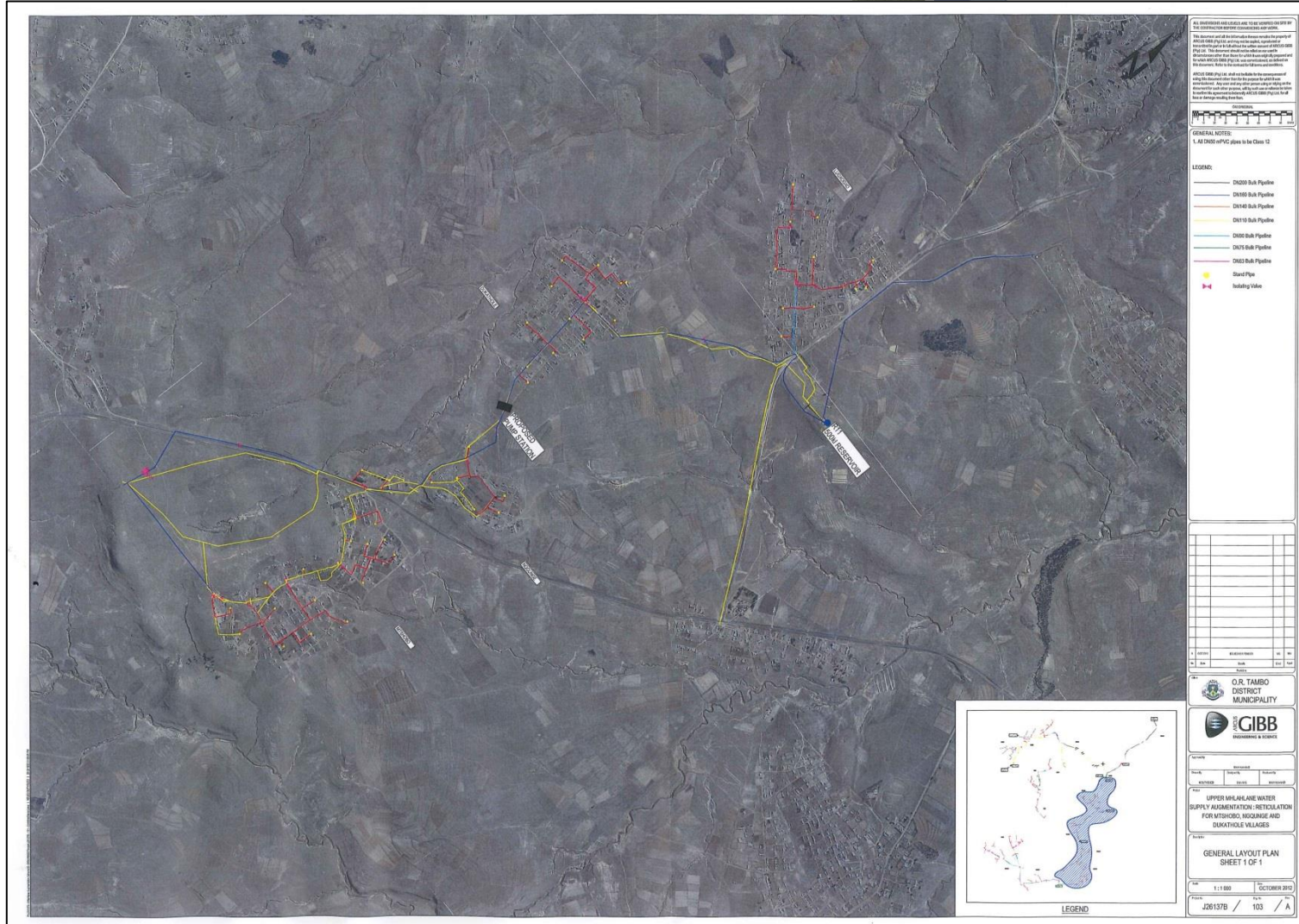


Figure 2-4: Infrastructure map of the Upper Mhlahlane Water Supply Augmentation Project for the Mtshobo, Ngqunge & Dukathole Villages.

ORTDM Upper Mhlahlane Water Supply Augmentation Project: Archaeological Impact Assessment Report

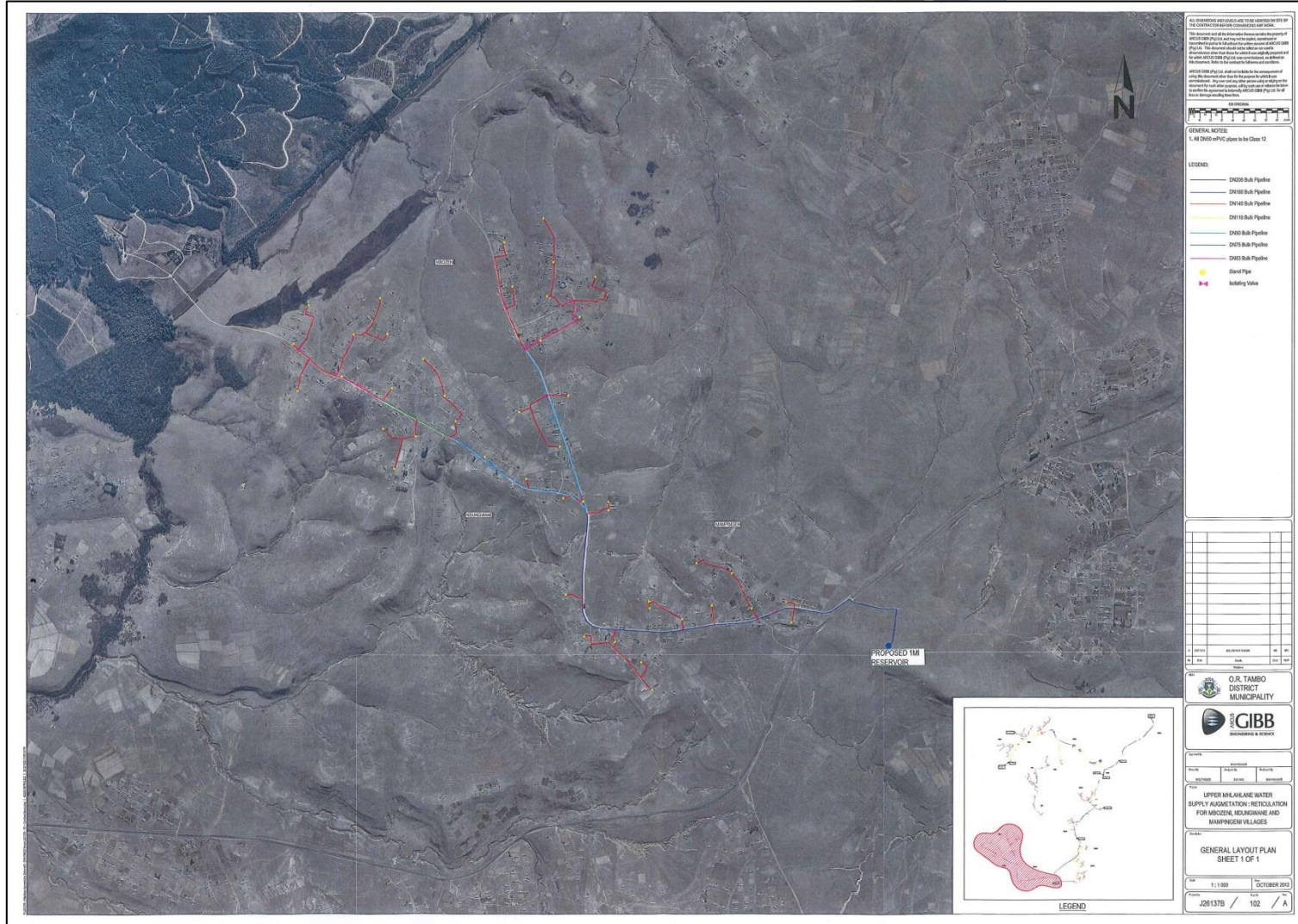


Figure 2-5: Infrastructure map of the Upper Mhlahlane Water Supply Augmentation Project for the Mbozeni, Ndungwane & Mampingeni Villages.

2.5 CRM: Legislation, Conservation and Heritage Management

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

2.5.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

- *National Heritage Resources Act No 25 of 1999, section 35*

According to the National Heritage Resources Act of 1999 a historical site is “any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years.” This clause is commonly known as the “60-years clause”. Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. “Tell” refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts). The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens
- visual art objects
- military objects
- numismatic objects
- objects of cultural and historical significance
- objects to which oral traditions are attached and which are associated with living heritage
- objects of scientific or technological interest
- any other prescribed category

With regards to activities and work on archaeological and heritage sites this Act states that:

“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority.” (34. [1] 1999:58)

“No person may, without a permit issued by the responsible heritage resources authority-

- (a) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
- (c) *trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*

- (d) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."*

And:

"No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

- (a) *destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*
- (b) *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;*
- (c) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*
- *Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925*

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities.

2.5.2 Background to HIA and AIA Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'Generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:

"38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as:

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of a site:
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (d) the re-zoning of a site exceeding 10 000 m² in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.”

And:

“The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

- (a) The identification and mapping of all heritage resources in the area affected;
- (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;
- (c) an assessment of the impact of the development on such heritage resources;
- (d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- (e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- (f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- (g) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64).”

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

3 REGIONAL CONTEXT

3.1 Area Location

The study area is located in Upper Mhlahlane, part of the former Transkei in the Eastern Cape Province. Mhlahlane is situated on the R61 road approximately 20km west of the town of Mtatha, generally at **S31.57650 E28.53572**.

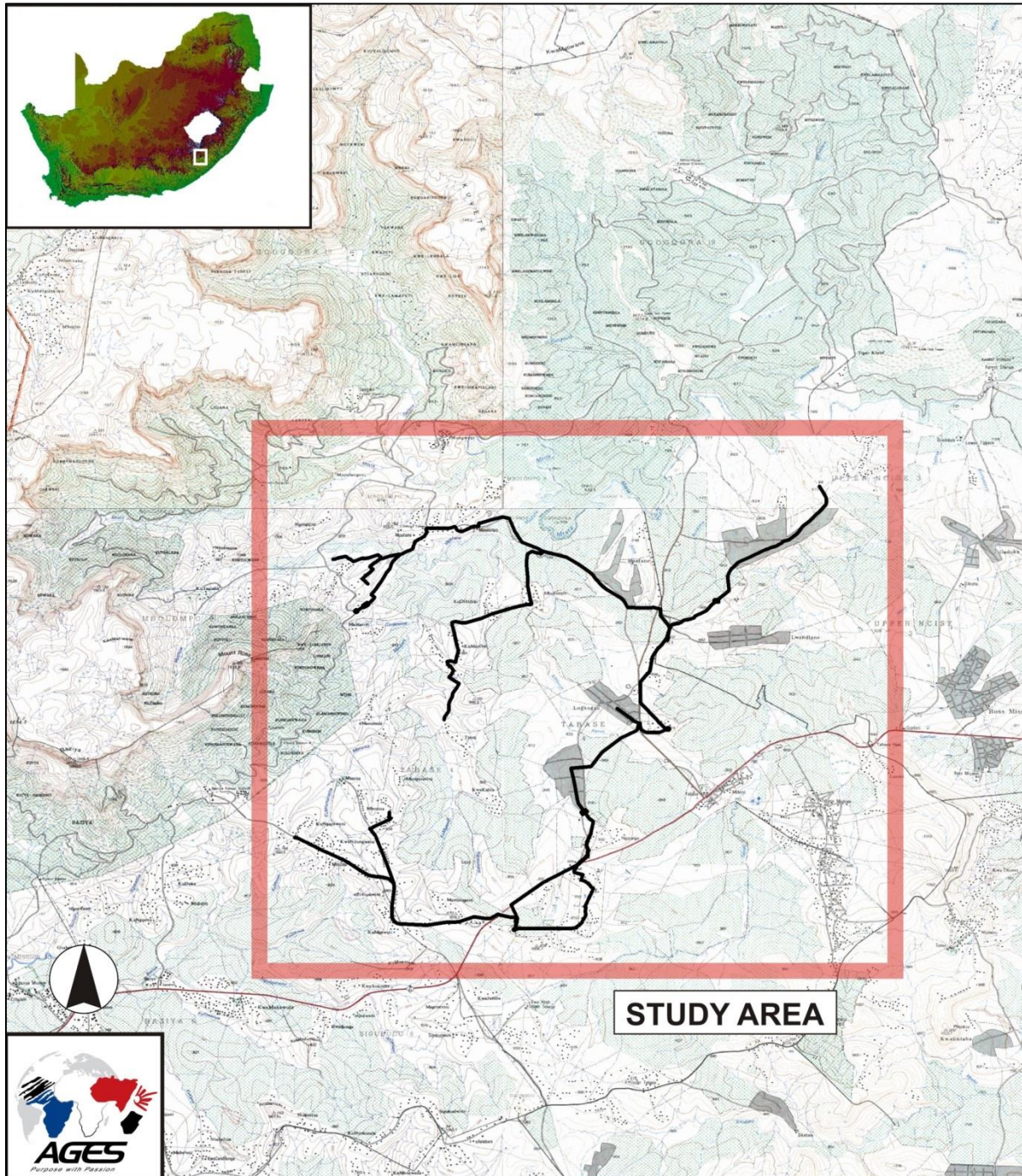


Figure 3-1: 1:50 00 Map representation of the Upper Mhlahlane Water Supply Augmentation Project location (3128CB).

3.2 Area Description: Receiving Environment

The Mhlahlane region is situated on the hills of the Eastern Cape grasslands south of the Drakensberg. The ecological landscape is defined as a combination of mixed grasslands and forest / scrub forest, typically dominated by mixed grassveld and forests at differing altitudes. The annual rainfall ranges between 1150 to over 1300mm per annum. The geology of the larger region is constituted by mudstones and sandstones of the Beaufort group and towards the coast, shales, mudstones and sandstones of the Ecca group, with exposures of dolerite intrusions mostly in the higher lying areas, are found. Soils in the area are moderate to deep and vary between sandy loams in the upper half to clayey loam in the downstream half. Several perennial and non-perennial streams and drainage lines, most of them originating in the surrounding hills, transect the area.

The proposed pipeline infrastructure is situated within expanding rural residential areas and surface disturbances are prevalent in the study areas. These disturbance agents include agricultural activities such as ploughing and grazing and severe surface erosion and decomposition of low-lying geomorphological deposits.



Figure 3-2: General surroundings in the Mhlahlane area looking west towards Mbolompo.

3.3 Site Description

The areas demarcating the Upper Mhlahlane Water Supply Augmentation Project infrastructure extends over an east-west area of approximately 17km where a bulk water supply pipeline, reticulation lines, access roads, a command reservoir, pump stations and water treatment works will be constructed.

A number of small settlements occur around the proposed pipeline route in the Mpafane & Lubomvini Villages, Tyeni, Diki-Diki & Mayibe Villages, Mtshobo, Ngqunge & Dukathole Villages and Mbozeni, Ndungwane & Mampingeni Villages. Extensive surface disturbances, the result of erosion activity are prevalent in areas in the study area.

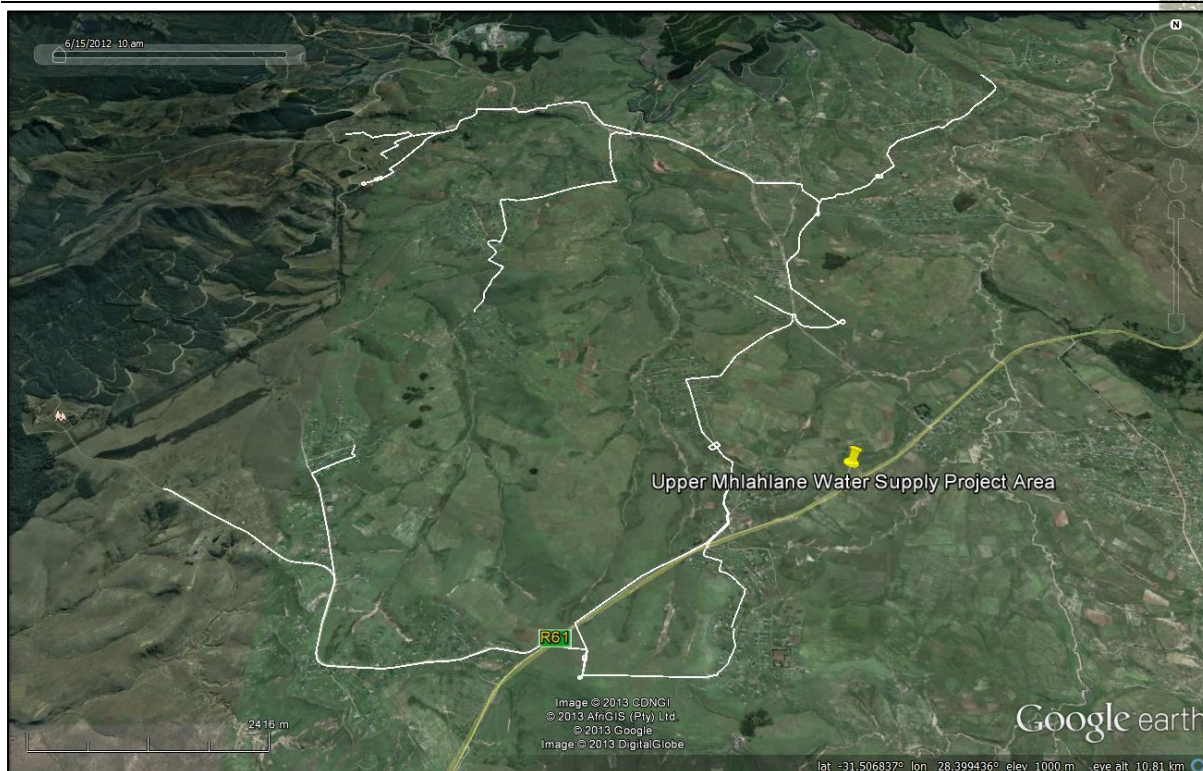


Figure 3-3: Aerial representation of main infrastructure (Bulk Water Supply and Reservoirs) pertaining to the Upper Mhlahlane Water Supply Project.

4 METHOD OF ENQUIRY

4.1 Sources of Information

4.1.1 Desktop Study

A desktop study was prepared in order to contextualize the proposed project within a larger historical milieu. The study focused on relevant previous studies, archaeological and archival sources, Heritage Impact Assessment Reports, aerial photographs, historical maps and local histories, all pertaining to the larger landscape of this section of the Eastern Cape Province.

4.1.2 Aerial Representations and Survey

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. This method was applied to aid the pedestrian and vehicular survey in the Upper Mhlahlane Water Supply Augmentation area and surroundings, where contour lines of elevations, depressions, variation in vegetation, soil marks and landmarks were examined. Specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments. By superimposing high frequency aerial photographs with images generated with Google Earth, potential sensitive areas were subsequently identified. These areas served as referenced points from where further pedestrian surveys were carried out.

4.1.3 Field Survey

Archaeological survey implies the systematic procedure of the identification of archaeological sites. An archaeological survey of areas to be impacted by the bulk water and reticulation pipelines was done by means of a systematic pedestrian survey in accordance with standard archaeological practise by which heritage resources are observed and documented. In order to sample surface areas systematically and to ensure a high probability of site recording the entire proposed route for the pipeline, including an impact footprint zone of approximately 20m were surveyed on foot and, using a Garmin E-trex Legend GPS objects and structures of archaeological / heritage value were recorded and photographed with a Canon 450D Digital camera. The pedestrian survey particularly focused around potentially sensitive areas e.g. sites of higher catchment probability – for example around water sources, on ridges and in drainage lines. Real time aerial orientation, by means of a mobile Google Earth application was also employed to investigate possible disturbed areas during the survey. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, special attention was given to disturbances, both man-made such as roads and clearings, as well as those made by natural agents such as burrowing animals and erosion.

4.1.4 General Public Liaison

In single cases, consultation with local residents provided information on the general history of the area, possible locations of heritage resources and brief commentaries on the recent history of the area.

4.2 Limitations

4.2.1 Access

The survey area is accessed from the east via the R61 main road from Mthatha to Ngcobo. Large number regional dirt roads connect the various villages in the study area to the main road. Access control is not applied to areas covered by proposed pipeline infrastructure routes. No access constraints or restrictions were encountered during the field survey.

4.2.2 Visibility

The surrounding vegetation in the larger Mhlahlane area is mostly comprised out of mixed grasslands and riverine bush. The general visibility at the time of the surveys (March 2013) was moderate due to relatively dense surface cover in the region, particularly along drainage lines. However, visibility along disturbed areas such as erosion gullies and along settlements was moderate to high. In single cases during the survey sub-surface inspection was possible but where applied, this revealed no substantial archaeological deposits.

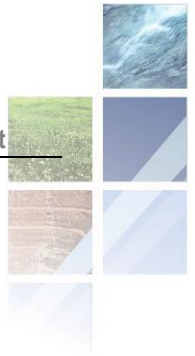


Figure 4-1: General visibility in the Mpafane area, looking south.



Figure 4-2: General visibility in the Maybe area, looking east.

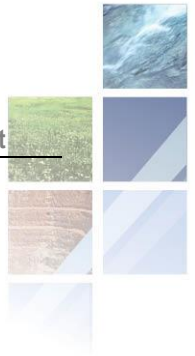


Figure 4-3: General visibility in the Ngqunge area, looking west.



Figure 4-4: General visibility in the Ndungwane area, looking south.

4.2.3 Limitations and Constraints

Due to the large extent of the surface area subject to the AIA study, the pedestrian and vehicular site survey primarily focused around areas tentatively identified as sensitive and of high heritage probability (i.e. those noted during the aerial survey) as well as areas of high human settlement catchment. However, the following constraints were encountered:

- **Survey Time and Extent:** Generally, time restrictions in terms of the site survey proved to be a constraint due to the vast surface extent of the Mhlahlane Water Supply Study Area. Therefore, pedestrian site surveys focused around areas tentatively identified as sensitive (i.e. along drainage lines and those noted during the aerial survey) as well as zones to be directly impacted by infrastructure.
- **Visibility:** Visibility proved to be somewhat of a constraint in more pristine areas where documented sites proved to be densely overgrown and obstructed by surface vegetation.

Thus, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage resources identified during the study do not necessarily represent *all* the heritage resources present on the property. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

5 RESULTS: ARCHAEOLOGICAL SURVEY

5.1 Mpfane & Lubomvini Villages

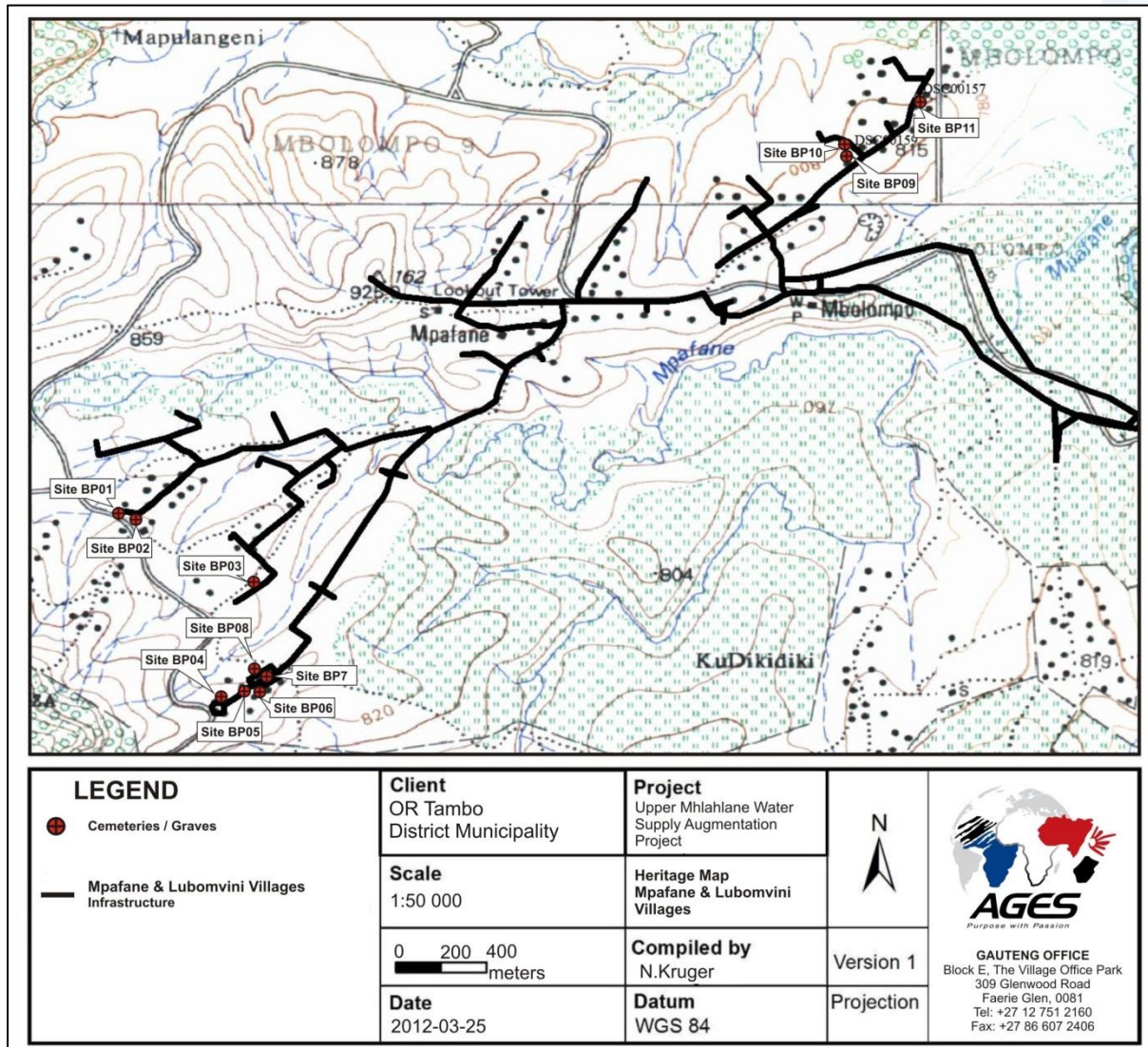


Figure 5-1: Map indicating the locations of archaeological and historical occurrences discussed in the text.

5.1.1 The Stone Age

No Stone Age material or sites were identified along proposed bulk and reticulation pipeline routes through the Mpfane & Lubomvini Villages. However, it is highly likely that Earlier, Middle and possibly Later Stone Age scatters will occur in the area, specifically along drainage lines.

5.1.2 The Iron Age (Farmer Period)

No Iron Age material was identified along proposed bulk and reticulation pipeline routes through the Mpfane & Lubomvini Villages but it is highly likely that Later Iron Age Farmer Period settlements and remnants will occur in the area, specifically on higher ridges and hills, and along drainage lines.

5.1.3 Historical / Colonial Period and recent times

No sites of Historical and / or recent origin were identified along proposed bulk and reticulation pipeline routes through the Mpafane & Lubomvini Villages but it is likely that Historical and recent heritage remains will occur in the area, specifically on higher ridges and hills, along drainage lines and around current agriculture fields as well as in and / or around existing settlement areas.

5.1.4 Graves

At least 11 separate burial grounds, containing a large number of graves were identified along proposed routes for reticulation lines and bulk water supply routes in the Mpafane & Lubomvini areas. In this area graves and cemeteries generally occur within settlements, often around homesteads and it is highly probable that these heritage resources might be encountered during construction, in addition to the sites noted below.

- **Site BP01: S31.51517 E28.46002**

A fenced soil mound, a possible grave occurs in a field west of Mpafane.

- **Site BP02: S31.51553 E28.46077**

Two graves, belonging to the Ngedle family are situated west of Mpafane next to a homestead. The graves are dressed with marble grave stones.

- **Site BP03: S31.51865 E28.46660**

This burial site, next to a road west of Mpafane, contains 4 graves. The graves are fenced but unmarked.

- **Site BP04: S31.52431 E28.46501**

Two graves, belonging to the Ndlobeni family are situated west of Mpafane next to a homestead. The graves are dressed with marble grave stones and the burials are maintained.

- **Site BP05: S31.52382 E28.46623**

A single grave, belonging to a member of the Nopumzile family occurs in a field east of Mpafane. The grave is dressed with marble but the burial is densely overgrown.

- **Site BP06: S31.52381 E28.46649**

Two graves, dressed with tile and brick structures occur next to a homestead west of Mpafane. The graves are situated in a wooden fence.

- **Site BP07: S31.52330 E28.46701**

A single grave dressed with tile and brick structures occurs in a field west of Mpafane.

- **Site BP08: S31.52295 E28.46653**

Two graves of the Ndlobeni family, dressed with tile, brick and marble structures occur next to a homestead west of Mpafane. The graves are well maintained and are situated in a wooden fence.

- **Site BP09: S31.49781 E28.49541**

A small burial site containing at least 3 graves occurs on a small hill east of Mpafane. The graves, dressed with concrete and marble stone are dilapidated and poorly maintained.

- **Site BP10: S31.49761 E28.49535**

A burial site containing at least 2 graves occur near Site BP09 on a small hill east of Mpafane. The graves are covered with concrete slabs.

- **Site BP11: S31.49511 E28.49863**

A burial site containing at least 2 graves occur near a homestead east of Mpafane. The graves are dressed with marble grave stones but the structures are densely overgrown.



Figure 5-2: Some of the burials documented in Mpafane & Lubomvini, clockwise from top left: Sites BP02, BP04, BP06, BP08.

5.2.3 Historical / Colonial Period and recent times

- **Site HP01: S31.52784 E28.54028**

The remains of a small historical settlement area was documented on a high ridge east of Mpafane within the footprint of the proposed route for the bulk water supply pipeline towards the command reservoir in the Upper Ncise area. These remains, included:

- The remains of huts (foundation structures).
- Round and square stone stock kraal structures and the indented foundations structures of cattle byres.

Even though a temporal context for the structures could not be ascertained, it might be assumed that the settlement remains date to the early 20th century. These estimations are based on the following inferences:

- Even though of low quality and resolution, aerial imagery dating to the first part of the 20th century suggests that the structures were present in the landscape in the early 1900's.
- As a general rule, southern African Iron Age farming communities constructed irregular circular stock enclosures. Squarely built enclosures only appear consequent to Colonial contact, which implies that the cattle kraals at these ruins did not belong to Iron Age stock farmers, but rather later more recent family units.
- The sites' close proximity to other similar homesteads currently in use, might suggest that these sites were occupied during early phases of the same occupational period of current homesteads in the area.



Figure 5-4: Aerial image detailing the occurrence of Historical Period cattle byres (white arrows).



Figure 5-5: The remains of indented Historical Period cattle byres at Site HP01.

5.2.4 Graves

At least 5 separate burial grounds, containing a large number of graves were identified along proposed routes for reticulation lines and bulk water supply routes in the Tyeni, Diki-Diki & Mayibe areas. In this area graves and cemeteries generally occur within settlements, often around homesteads and it is highly probable that these heritage resources might be encountered during construction, in addition to the sites noted below.

- **Site BP12: S31.50995 E28.56343**

A small informal cemetery containing 2 unmarked graves occur in a settlement east of Mayibe along the route of the proposed bulk water supply pipeline towards the eastern reservoir.

- **Site BP13: S31.53215 E28.48925**

A small informal cemetery containing 4 marked graves occur in a field approximately 50m from proposed reticulation line routes in Mayibe.

- **Site BP14: S31.53801 E28.48694**

Two graves, one dressed with concrete and the other a soil mound occur in an open field in Mayibe.

- **Site BP15: S31.53625 E28.48367**

Four graves of the Semese family occur near a number of homesteads at Mayibe. All the graves are marked, either with marble headstones or brick structures.

- Site BP82: S31.551871° E28.486220°

A small informal cemetery containing 2 unmarked graves occur in a settlement in Tyeni, The burials are marked with soil mounds and stones.



Figure 5-6: Some of the burials documented in Tyeni, Diki-Diki & Mayibe, from left to right: Sites BP15, BP12, BP14.

5.3 Mtshobo, Ngqunge & Dukathole Villages

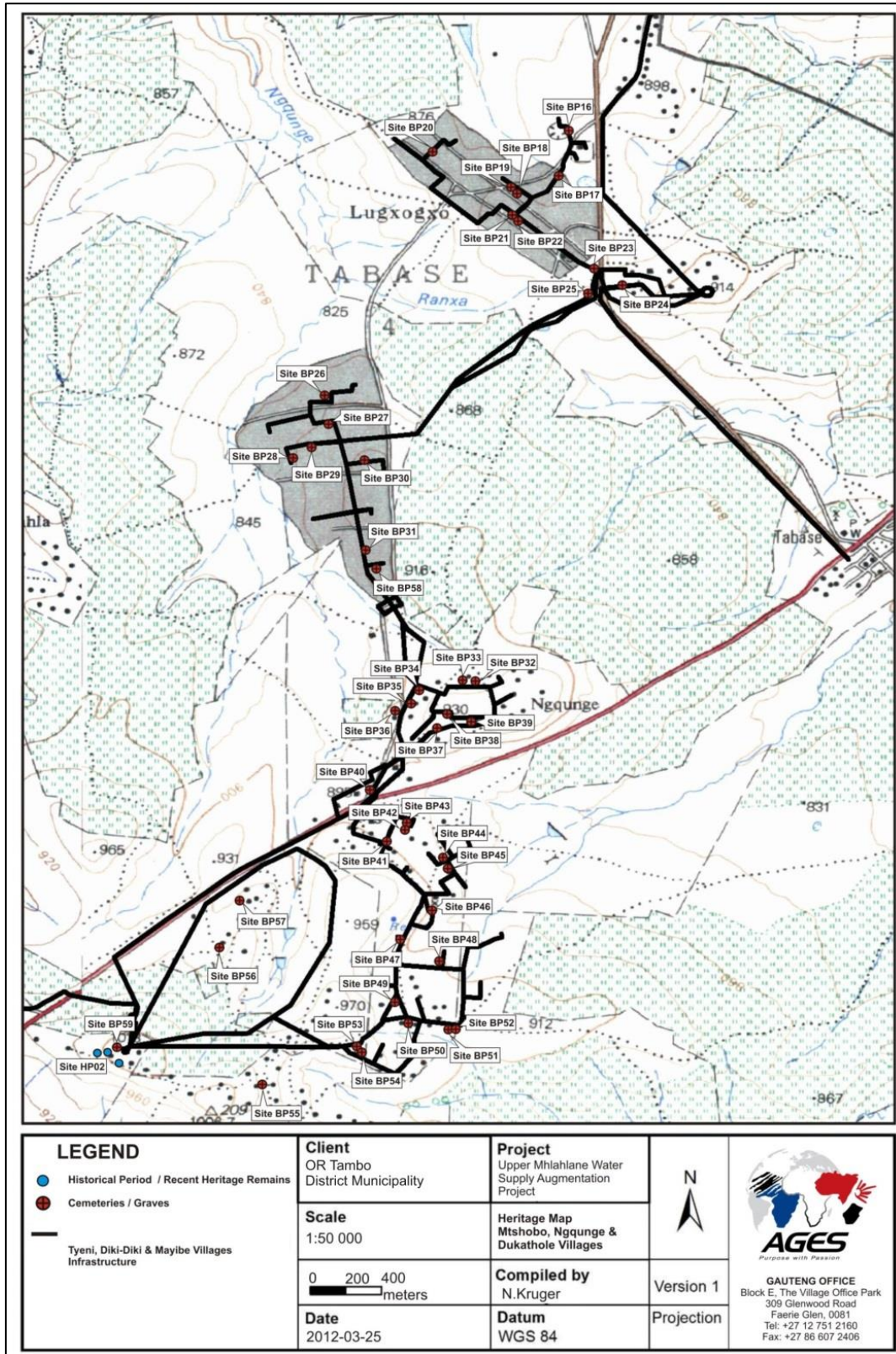


Figure 5-7: Map indicating the locations of archaeological and historical occurrences discussed in the text.

5.3.1 The Stone Age

No Stone Age material or sites were identified along proposed bulk and reticulation pipeline routes through the Mtshobo, Ngqunge & Dukathole Villages. However, it is highly likely that Earlier, Middle and possibly Later Stone Age scatters will occur in the area, specifically along drainage lines.

5.3.2 The Iron Age (Farmer Period)

No Iron Age material was identified along proposed bulk and reticulation pipeline routes through the Mtshobo, Ngqunge & Dukathole Villages but it is highly likely that Later Iron Age Farmer Period settlements and remnants will occur in the area, specifically on higher ridges and hills, and along drainage lines.

5.3.3 Historical / Colonial Period and recent times

- Site HP02: S31.600725° E28.501575°

The remains of a large historical settlement, somewhat similar to that at **Site HP01** occur on the summit of a high ridge south-west of Ngqunge where a command reservoir is proposed. A cell phone reception mast has been erected on the hill which might have already impacted on the historical settlement. At this site the following remains were noted:

- The remains of huts (foundation structures).
- A large amount of round and square stone stock kraal structures and the indented foundations structures of cattle byres.
- A lower grindstone.
- Metal, glass and plastic objects.
- Possible burials (**Site BP59**).

As with other similar remains in the landscape, a temporal context for the structures could not be ascertained. However, it might be assumed that the settlement remains date to the early 20th century. These estimations are based on the following inferences:

- Even though of low quality and resolution, aerial imagery dating to the first part of the 20th century suggests that the structures were present in the landscape in the early 1900's.
- As a general rule, southern African Iron Age farming communities constructed irregular circular stock enclosures. Squarely built enclosures only appear consequent to Colonial contact, which implies that the cattle kraals at these ruins did not belong to Iron Age stock farmers, but rather later more recent family units.
- The sites' close proximity to other similar homesteads currently in use, might suggest that these sites were occupied during early phases of the same occupational period of current homesteads in the area.

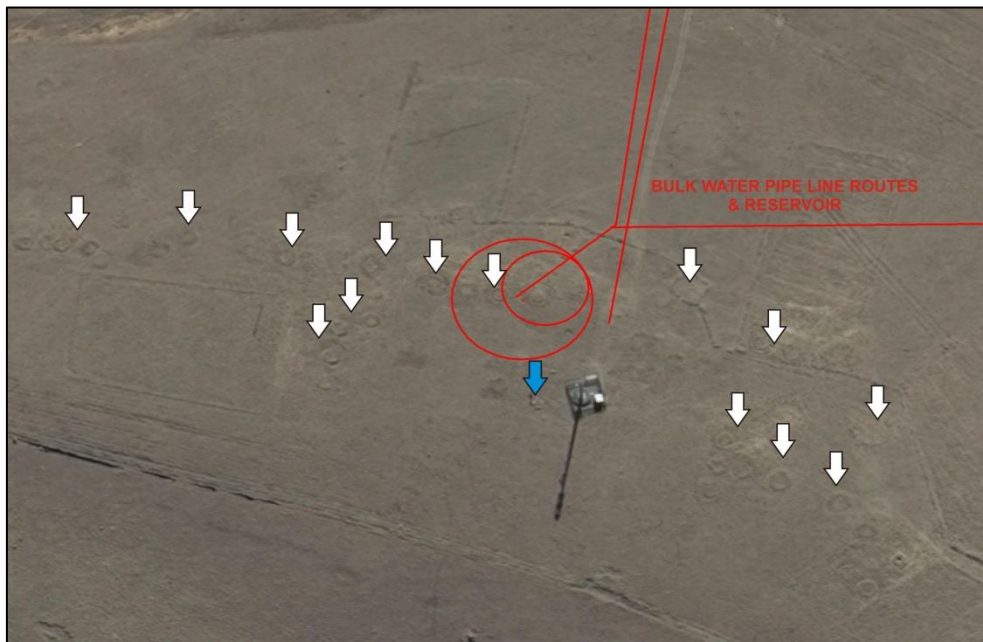
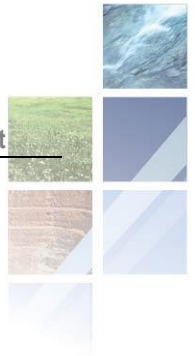


Figure 5-8: Aerial image detailing the extent of the Historical Period settlement area at Site HP02. The remains of cattle byres are indicated by white arrows.



Figure 5-9: House remains and material culture from site HP02.

5.3.4 Graves

At least 43 separate burial grounds, containing a large number of graves were identified along proposed routes for reticulation lines and bulk water supply routes in the Tyeni, Diki-Diki & Maybe areas. In this area graves and cemeteries generally occur within settlements, often around homesteads and it is highly probable that these heritage resources might be encountered during construction, in addition to the sites noted below.

- **Site BP16: S31.54270 E28.53040**

A single grave occurs in a maize field at Mtshobo. The grave is heavily overgrown and not clearly visible.

- **Site BP17: S31.54553 E28.52969**

Two unmarked graves occur in an open field in Mtshobo. The burials are demarcated by soil mounds.

- **Site BP18: S31.54650 E28.52715**

A single unmarked grave, dressed with a brick and tile structure was documented near a homestead in Mtshobo.

- **Site BP19: S31.54626 E28.52693**

A small cemetery containing at least 3 graves of the Makhayonke family occurs in a small fence enclosure in Mtshobo. Two of the graves are dressed with brick and tile structures and the other burial is marked by a soil mound.

- **Site BP20: S31.54396 E28.52177**

Two unmarked graves occur in an open field in Mtshobo. The burials are demarcated by soil mounds.

- **Site BP21: S31.54799 E28.52700**

A single grave, marked by a soil mound and a rough unmarked headstone occurs in an open field in Mtshobo.

- **Site BP22: S31.54817 E28.52720**

Three unmarked graves occur in an open field in Mtshobo. The burials are demarcated by soil mounds and rough head and foot stones.

- **Site BP23: S31.55141 E28.53200**

A small cemetery containing 2 graves of the Fuzile family occur near a homestead in a field at Mtshobo. The graves are dressed with marble gravestones and a brick enclosure wall surrounds the structures.

- **Site BP24: S31.55244 E28.53375**

A large informal cemetery containing a large number of graves of various families, occurs on a high ridge directly south-east of Mtshobo. Most of the graves are marked with marble and concrete gravestones and dressings, and the cemetery is fenced.

- **Site BP25: S31.55302 E28.53172**

A single grave of the Magula family occurs in a maize field at Mtshobo. The grave is overgrown and not clearly visible.

- **Site BP26: S31.55944 E28.51513**

Four unmarked graves occur in an open field in Ngqunge. The burials are demarcated by soil mounds and rough head and foot stones.

- **Site BP27: S31.56108 E28.51522**

A single unmarked grave occurs in an open field in Ngqunge. The burial is demarcated by a soil mound and rough head and foot stones.

- **Site BP28: S31.56330 E28.51292**

At least 6 unmarked graves occur in an open field in the Ngqunge area. The graves are demarcated by soil mounds and dilapidated fences around the burials are still visible.

- **Site BP29: S31.56258 E28.51410**

At least 6 graves occur in an area of approximately 25 x 25 meters in Ngqunge. The graves are marked by soil mounds.

- **Site BP30: S31.56360 E28.51747**

A single grave occurs in an open field in Ngqunge. The grave is demarcated with a soil mound and not clearly visible.

- **Site BP31: S31.56919 E28.51746**

An informal cemetery containing at least 2 unmarked graves occur in Ngqunge. The graves are demarcated with soil mounds and are fenced.

- **Site BP32: S31.57749 E28.52442**

A single grave occurs in an open field in Ngqunge. The unmarked grave is demarcated with a brick and concrete structure.

- **Site BP33: S31.57742 E28.52370**

A small cemetery containing at least 5 graves occur next to a gravel road in Ngqunge. One of the graves is dressed with a dilapidated marble gravestone and the other burials are demarcated with soil mounds.

- **Site BP34: S31.57789 E28.52101**

A possible small cemetery containing at least 4 soil mounds, possibly graves, occur in an open field in Ngqunge.

- **Site BP35: S31.57883 E28.52030**

Two unmarked graves with brick and concrete grave dressings occur in a crop field next to a homestead in Ngqunge.

- **Site BP36: S31.57934 E28.51966**

Two marked graves with marble headstones occur in an open field, approximately 15m from proposed reticulation lines routes. The graves are somewhat dilapidated.

- **Site BP37: S31.58051 E28.52213**

A cemetery belonging to members of the Qina family occurs in Ngqunge next to a road. The cemetery holds at least 14 graves, dressed with stone, marble and brick structures and some of the burials are overgrown.

- **Site BP38: S31.57939 E28.52277**

A single grave of a Qina family member occurs near a number of homesteads in Ngqunge. The grave is dressed with tiles and brick.

- **Site BP39: S31.58022 E28.52424**

A more formal cemetery belonging to members of the Qina family occurs prominently near a compound of buildings in Ngqunge. The cemetery, which is fenced and maintained, holds at least 16 graves, some of which are dressed with large marble, tile and brick grave stone structures. It might be inferred that that the cemetery belong to important members of the Ngqunge community.

- **Site BP40: S31.58429 E28.51787**

Another 2 graves of Qina family members occur in a crop field next to a homestead in Ngqunge. The graves are dressed with marble headstone and are overgrown.

- **Site BP41: S31.58760 E28.51905**

A single grave of a Kiva family member occur in a field in Ngqunge. The grave is dressed with a marble headstone.

- **Site BP42: S31.58653 E28.52013**

Another small informal cemetery containing at least 2 graves occurs in Ngqunge. The graves are demarcated by soil mounds and one of the burials is fenced.

- **Site BP43: S31.58640 E28.52017**

A single unmarked grave, demarcated by a soil and stone mound, occurs in a field in Ngqunge.

- **Site BP44: S31.58869 E28.52247**

A single grave, dressed with a faded marble headstone, occur in a field in Ngqunge.

- **Site BP45: S31.58916 E28.52289**

Another small cemetery containing at least 3 graves of the Xalabile family occur in a crop field next to a homestead in Ngqunge. The marble dressing of the 2 of the graves is covered in plastic and the other grave is densely overgrown.

- **Site BP46: S31.59195 E28.52164**

A single grave of a Jumba family member occur in a field in Ngqunge. The grave is dressed with a marble headstone.

- **Site BP47: S31.59370 E28.51978**

Another small informal cemetery containing at least 2 graves occurs in Ngqunge. The graves are demarcated by soil mounds and a dilapidated fence.

- **Site BP48: S31.59519 E28.52233**

At least 2 more graves occur in Ngqunge. The burials are demarcated by soil mounds and rough stone headstones.

- **Site BP49: S31.59764 E28.51936**

Another small informal cemetery containing at least 3 graves occurs in Ngqunge. The graves are demarcated by soil mounds and but the burials are densely overgrown.

- **Site BP50: S31.59893 E28.52032**

Another 2 graves occurs in Ngqunge next to a road. The graves are demarcated by soil mounds.

- **Site BP51: S31.59932 E28.52298**

A single grave occur next to a road in Ngqunge. The burial is demarcated by a soil mound and rough stone headstone.

- **Site BP52: S31.59930 E28.52310**

Another single grave occur next to a road in Ngqunge. The burial is demarcated by a soil mound and rough stone headstone.

- **Site BP53: S31.60046 E28.51700**

A small informal cemetery containing at least 3 unmarked graves occur in Ngqunge. The graves, demarcated by soil mounds and rough stone headstones, are situated next to a small homestead in a field.

- **Site BP54: S31.60070 E28.51717**

Another 3 unmarked graves occur in Ngqunge closed to Site BP53. The graves, demarcated by soil mounds and rough stone headstones, are scattered over a small area in a field.

- **Site BP55: S31.60319 E28.51091**

A small informal cemetery containing at least 3 graves occur high on a ridge near Ngqunge. The graves, dressed with marble headstones, occur away from proposed bulk water and reticulation line routes.

- **Site BP56: S31.59424 E28.50833**

Another small informal cemetery containing at least 3 graves occur on a ridge near Ngqunge and the R61 road. The graves, dressed with marble headstones, occur away from proposed bulk water and reticulation line routes.

- **Site BP57: S31.59123 E28.50964**

A small informal cemetery containing at least 3 graves occur near Ngqunge and the R61 road. The graves, dressed with marble headstones, occur away from proposed bulk water and reticulation line routes.

- **Site BP58: S31.57022 E28.51818**

Another 2 unmarked graves occur in Ngqunge. The graves, demarcated by soil mounds, are scattered overgrown.

- **Site BP59: S31.600745 E28.501649**

A possible historical burial site occurs high on a hill south of Ngqunge. The possible burials, marked with headstones and soil mounds, are placed within the context of a number of possible historical period occupation structures and sites on the ride (**Site HP02**).



Figure 5-10: Some of the burials documented in Mtshobo, Ngqunge & Dukathole, clockwise from top left: Sites BP19, BP23, BP24, BP31, BP33, BP39.

5.4 Mbozeni, Ndungwane & Mampingeni Villages

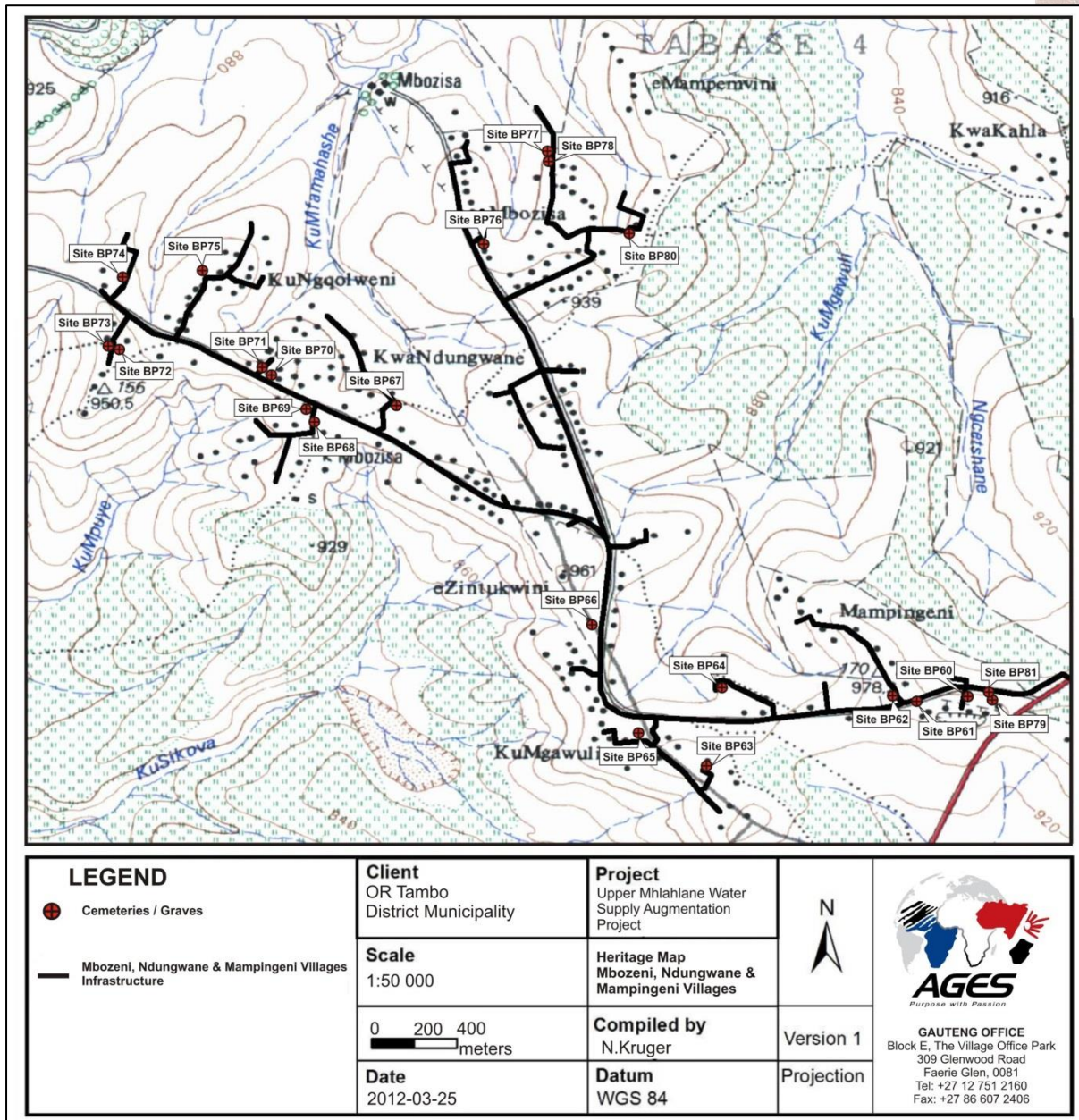


Figure 5-11: Map indicating the locations of archaeological and historical occurrences discussed in the text.

5.4.1 The Stone Age

No Stone Age material or sites were identified along proposed bulk and reticulation pipeline routes through the Mbozeni, Ndungwane & Mampingeni Villages. However, it is highly likely that Earlier, Middle and possibly Later Stone Age scatters will occur in the area, specifically along drainage lines.

5.4.2 The Iron Age (Farmer Period)

No Iron Age material was identified along proposed bulk and reticulation pipeline routes through the Mbozeni, Ndungwane & Mampingeni Villages but it is highly likely that Later Iron Age Farmer Period settlements and remnants will occur in the area, specifically on higher ridges and hills, and along drainage lines.

5.4.3 Historical / Colonial Period and recent times

No sites of Historical and / or recent origin were identified along proposed bulk and reticulation pipeline routes through the Mbozeni, Ndungwane & Mampingeni Villages but it is likely that Historical and recent heritage remains will occur in the area, specifically on higher ridges and hills, along drainage lines and around current agriculture fields as well as in and / or around existing settlement areas.

5.4.4 Graves

At least 21 separate burial grounds, containing a large number of graves were identified along proposed routes for reticulation lines and bulk water supply routes in the Tyeni, Diki-Diki & Maybe areas. In this area graves and cemeteries generally occur within settlements, often around homesteads and it is highly probable that these heritage resources might be encountered during construction, in addition to the sites noted below.

- **Site BP60: S31.59816 E28.49327**

A single grave occurs in a field, approximately 10m away from proposed reticulation line routes in Mampingeni. The burial is demarcated by a soil mound.

- **Site BP61: S31.59839 E28.49054**

Another small informal cemetery containing 2 graves occur in Mampingeni. The graves, dressed with marble and brick structures are situated in a field next to a road.

- **Site BP62: S31.59817 E28.48947**

A single unmarked grave occurs in a field in Mampingeni. The burial is demarcated by a brick structure and is fenced.

- **Site BP63: S31.60223 E28.47914**

Two unmarked graves, one covered with a brick structure and the other a soil mound occurs near a homestead in Mampingeni.

- **Site BP64: S31.59769 E28.48000**

A small fenced informal cemetery containing at least 3 graves occur west of Mampingeni. The graves are demarcated by soil mounds and stones.

- **Site BP65: S31.60034 E28.47546**

A single unmarked grave occurs in a field in Mampingeni. The burial is demarcated by a concrete and brick structure.

- **Site BP66: S31.59430 E28.47296**

A single unmarked grave of a Golomile family member occurs in a field west of Mampingeni. The burial has a marble gravestone.

- **Site BP67: S31.58245 E28.46222**

A small fenced informal cemetery, in run down state containing at least 2 graves occurs in Ndugwane. The graves are demarcated by soil mounds and stones.

- **Site BP68: S31.58331 E28.45758**

An informal cemetery containing at least 7 marked and unmarked graves occurs in Ndugwane. The graves are dressed with marble, stone and concrete and others are demarcated by soil mounds.

- **Site BP69: S31.58256 E28.45740**

A single grave with a faded marble tomb stone occurs in Ndugwane. The burial is fenced.

- **Site BP70: S31.58056 E28.45526**

Another single unmarked grave occurs near cluster of homesteads in Ndugwane. The burial is covered with a brick structure.

- **Site BP71: S31.58045 E28.45480**

A single burial similar to that documented at Site BP70, near cluster of homesteads in Ndugwane. The burial is covered with a brick structure.

- **Site BP72: S31.57925 E28.44690**

A small informal cemetery containing at least 3 graves occur near cluster of homesteads in Ndugwane. One of the graves bears an unmarked brick stone structure and the other burials are demarcated by soil mounds and rough headstones.

- **Site BP73: S31.57917 E28.44661**

Two unmarked burials were documented in Ndugwane. The graves are demarcated by soil mound and are not clearly visible.

- **Site BP74: S31.57543 E28.44737**

A further two unmarked burials were documented in Ndugwane. The graves are demarcated by soil mound and are fenced.

- **Site BP75: S31.57514 E28.45167**

A single fenced grave of the Basana family occur in Ndugwane. The grave is dressed with a brick and concrete and the family name is painted on the structure.

- **Site BP76: S31.57356 E28.46696**

A small informal cemetery containing 3 graves of the Joni family occur in the Mapingeni area. The graves, enclosed in an iron fence, is dressed with marble gravestones but densely overgrown.

- **Site BP77: S31.56867 E28.47074**

Another small informal cemetery containing at least 5 graves occur in the Mapingeni area. The graves are demarcated by soil mounds and are not clearly visible.

- **Site BP78: S31.56894 E28.47071**

A small informal cemetery containing at least 3 graves occur in the Mapingeni area. The graves, demarcated by soil mounds, are poorly preserved. One of the graves bears a wooden cross with the name Andiswa Ntemla.

- **Site BP79: S31.59833 E28.49479**

A single grave of the Nozamlile family occurs in the Mapingeni area. The grave, covered with a marble gravestone, is placed within a decorated iron fence.

- **Site BP80: S31.57283 E28.47486**

Two unmarked graves, demarcated by soil mounds occur in the Mapingeni area. The burials are fenced.

- **Site BP81: S31.59796 E28.49466**

A small informal cemetery containing at least 2 graves occur in the Mapingeni area. The graves, dressed with dilapidated brick structures, are situated next to a number of homesteads.



Figure 5-12: Some of the burials documented in Mbozeni, Ndungwane & Mapingeni, clockwise from top left: Sites BP63, BP65, BP66, BP69, BP76, BP79.

6 ARCHAEO-HISTORICAL CONTEXT

6.1 The archaeology of Southern Africa

Archaeology in southern Africa is typically divided into two main fields of study, the **Stone Age** and the **Iron Age** or **Farmer Period**. The following table provides a concise outline of the chronological sequence of periods, events, cultural groups and material expressions in Southern African pre-history and history:

Table 6 Chronological Periods across southern Africa

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period 300 – 900 AD	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.

Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron / gold / copper objects, trade goods and grinding stones.
Late Iron Age / Later Farmer Period 1400 AD -1850 AD	Holocene	Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.
Historical / Colonial Period ±1850 AD – present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

6.1.1 The Stone Ages

- The Earlier Stone Age (ESA)

Earlier Stone Age deposits typically occur on the flood-plains of perennial rivers and may date to between 2 million and 250 000 years ago. These ESA open sites sometimes contain stone tool scatters and manufacturing debris ranging from pebble tool choppers to core tools such as handaxes and cleavers. These stone tools were made by the earliest hominins. These groups seldom actively hunted and relied heavily on the opportunistic scavenging of meat from carnivore kill sites.

- The Middle Stone Age (MSA)

The majority of Middle Stone Age (MSA) sites occur on flood plains and sometimes in caves and rock shelters. Sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades and associated manufacturing debris. Tools may have been hafted but organic materials, such as those used in hafting, seldom remain preserved in the archaeological record. Limited drive-hunting activities are also associated with the MSA.

- The Later Stone Age (LSA)

Sites dating to the Later Stone Age (LSA) are better preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Well-protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material. By using San (Bushman) ethnographic data a better understanding of this period is possible. South African rock art is also associated with the LSA.

6.1.2 The Iron Age (Farmer Period)

- Early Iron Age (Early Farming Communities)

The Early Iron Age (also Early Farmer Period) marks the movement of Bantu speaking farming communities into South Africa at around 200 A.D. These groups were agro-pastoralists that settled in the vicinity of water in order to provide subsistence for their cattle and crops. Artefact evidence from Early Farmer Period sites is mostly found in the form of ceramic assemblages and the origins and archaeological identities of this period are largely based upon ceramic typologies and sequences, where diagnostic pottery assemblages can be used to infer group identities and to trace movements across the landscape. Early Farmer Period ceramic traditions are classified by some scholars into different “streams” or trends in pot types and decoration that, over time emerged in southern Africa. These “streams” are identified as the Kwale Branch (east), the Nkope Branch (central) and the Kalundu Branch (west). More specifically, in the northern regions of South Africa at least three settlement phases have been distinguished for prehistoric Bantu-speaking agropastoralists. The first phase of the Early Iron Age, known as Happy Rest (named after the site where the ceramics were first identified), is representative of the

Western Stream of migrations, and dates to AD 400 - AD 600. The second phase of Diamant is dated to AD 600 - AD 900 and was first recognized at the eponymous site of Diamant in the western Waterberg. The third phase, characterised by herringbone-decorated pottery of the Eiland tradition, is regarded as the final expression of the Early Iron Age (EIA) and occurs over large parts of the North West Province, Northern Province, Gauteng and Mpumalanga. This phase has been dated to about AD 900 - AD 1200. Early Farmer Period ceramics typically display features such as large and prominent inverted rims, large neck areas and fine elaborate decorations. The Early Iron Age continued up to the end of the first millennium AD.

- **Middle Iron Age / K2 Mapungubwe Period (early Later Farming Communities)**

The onset of the middle Iron Age dates back to ± 900 AD, a period more commonly known as the Mapungubwe / K2 phase. These names refer to the well known archaeological sites that are today the pinnacle of South Africa's Iron Age heritage. The inhabitants of K2 and Mapungubwe, situated on the banks of the Limpopo, were agriculturalists and pastoralists and were engaged in extensive trade activities with local and foreign traders. Although the identity of this Bantu-speaking group remains a point of contestation, the Mapungubwe people were the first state-organized society southern Africa has known. A considerable amount of golden objects, ivory, beads (glass and gold), trade goods and clay figurines as well as large amounts of potsherds were found at these sites and also appear in sites dating back to this phase of the Iron Age. Ceramics of this tradition take the form of beakers with upright sides and decorations around the base (K2) and shallow-shouldered bowls with decorations as well as globular pots with long necks. (Mapungubwe). The site of Mapungubwe was deserted at around 1250 AD and this also marks the relative conclusion of this phase of the Iron Age.

- **Later Iron Age (Later Farming Communities)**

The late Iron Age of southern Africa marks the grouping of Bantu speaking groups into different cultural units. It also signals one of the most influential events of the second millennium AD in southern Africa, the difaqane. The difaqane (also known as "the scattering") brought about a dramatic and sudden ending to centuries of stable society in southern Africa. Reasons for this change was essentially the first penetration of the southern African interior by Portuguese traders, military conquests by various Bantu speaking groups primarily the ambitious Zulu King Shaka and the beginning of industrial developments in South Africa. Different cultural groups were scattered over large areas of the interior. These groups conveyed with them their customs that in the archaeological record manifest in ceramics, beads and other artefacts. This means that distinct pottery typologies can be found in the different late Iron Age groups of South Africa.

6.1.3 Historical and Colonial Times and Recent History:

The Historical period in southern Africa encompass the course of Europe's discovery of South Africa and the spreading of European settlements along the East Coast and subsequently into the interior. In addition, the formation stages of this period are marked by the large scale movements of various Bantu-speaking groups in the interior of South Africa, which profoundly influenced the course of European settlement. Finally, the final retreat of the San and Khoekhoen groups into their present-day living areas also occurred in the Historical period in southern Africa.

6.2 Mhlahlane: Specific Themes

The regions surrounding the Eastern Cape and the Lesotho frontier have been the subject of few archaeological research projects. However, the area displays a rich archaeological landscape with significant palaeontological, archaeological and historical sites.

6.2.1 Palaeontology

A large number of paleontological sites occur around the Eastern Cape and in areas towards Lesotho. Material found in and around Lesotho, the Eastern Cape Highlands and in the Karoo of South Africa is significant as it documents the late Triassic to early Jurassic transition, which is the period for the evolution of true dinosaurs, crocodile ancestors, bird ancestors and early mammals.

6.2.2 The Stone Age Period

Early Stone Age (ESA) material (1.5 million years ago-250 000 years ago) such as hand axes and cleavers is relatively rare in the Eastern Cape with sites occurring mostly in major river valleys. Generally these artefacts are not found *in situ* and are likely to be out of their primary context. Middle Stone Age (MSA) material (250 000-30 000 years ago) typically made from quartzite, dolerite, or hornfels, occurs as surface scatters at sites throughout the Eastern Cape Highlands along minor and major river courses, usually also not *in situ*. Specifically, these sites occur in exposed and disturbed areas such as quarries, erosion dongas, gravel farm roads and 'manmade' dams (Binneman *et al.* 2010). Data obtained from the Middle Stone Age deposits in the Eastern, Western, and Southern Cape have provided detailed palaeoenvironmental records with long occupation sequences providing evidence of occupation for much of the Late Pleistocene. The Later Stone Age (LSA) (30 000 years ago – present) is abundantly represented with LSA material found across the Eastern Cape. The area is renowned for its rich rock art heritage. The majority of these rock markings can be associated with Later Stone Age San hunter-gatherers.

6.2.3 Hunters-gatherers, Herders and Shell Middens



Figure 6-1: Large shell midden off the coast of southern Africa.

Hunter-gatherer and herder sites occur widely in the Eastern Cape. It is sometimes difficult to distinguish between hunter-gatherer and herder sites, because the former may have acquired stock through theft or herder clientship and the latter largely relied on hunting and gathering to supplement pastoral resources. Both groups collected shellfish and used other food sources from the sea, and both groups hunted and gathered plant food.

Excavations at sites indicate that shellfish and marine animals, and in particular seals, specifically formed a major part of their diet. The intensive utilization of shellfish manifests in the archaeological record through hundreds of shell middens dating to the terminal Pleistocene and Holocene that litter the coastal areas of southern Africa (see Figure 6-1). Mega-middens which accumulated in coastal and inland areas probably represent alternative seasonal food resources and the shellfish species from middens reflect the species available in the immediate vicinity and also provide information on the environment. Inland shell middens are also found in the Eastern Cape and these shell accumulations date to the last 3000 years. The existence of these features implies the use of alternative food sources as a result of the spread of pastoralists and Iron Age people (Deacon 1984b). Various researchers have observed that the occurrence of seasonally restricted food remains in archaeological deposits could be linked to historically known seasonal movements by the early Khoisan and Khoekhoen hunters and herders of the Cape.

6.2.4 A landscape of rock markings: Rock Art

The Eastern Cape and Lesotho regions are renowned for their rich rock art heritage. The majority of these rock markings can be associated with Later Stone Age hunter-gatherers, more specifically a group known locally as the Maloti San. This group was probably widespread in Lesotho and adjacent areas over the last few thousand years, but they may have retreated into mountainous areas year-round when farmers moved into the region. The rock art is found in different densities in various parts of Lesotho and the Eastern Cape, mostly in areas with appropriate rock shelters. This rock art images are composed of very finely drawn polychromatic images with narrow lines, small dots and gradated colouring. The images usually depict eland, rhebok, or humans in various states, activities, or postures. Occasionally, lions, other carnivores, other antelope, baboons, cattle, horses, horseback riders, snakes, and extraordinary creatures with human and animal features (known as therianthropes) are depicted. This imagery is associated with the religious, spiritual and healing activities of the Maloti San groups.



Figure 6-2: Hunter-Gatherer Rock Art from southern Lesotho.

Relatively little research has been conducted on the archaeology of later farmer communities of Lesotho and adjacent areas. According to research in adjacent parts of South Africa, there was little or no settlement in the dry high-altitude grasslands of the north-western parts of the Eastern Cape and Lesotho until after AD 1600 (e.g. Walton 1956; Maggs 1976; Hall 1990; Mitchell 2002). In many instances, Later Iron Age farmer communities moved from river valleys to the hilltops, such settlements have been formally recorded by the Albany Museum and cover a relatively extended area in comparison to the Early Iron Age settlement patterns (Binneman *et al.* 2010). As such, Later Iron Age communities gradually expanded into the grasslands of the KwaZulu-Natal and north Eastern Cape interior. An early phase of the Late Iron Age has been uncovered in KwaZulu-Natal which transpired in a ceramic style known as "Blackburn". This ceramic style represents a break with that of the Early Iron Age. Since there is a resemblance between Blackburn pottery and Nguni pottery, Huffman (1989) postulates that Blackburn reflects the migration of the Nguni to KwaZulu-Natal and later to the Transkei. Consequently, sites belonging to the final phase of the Late Iron Age can often be linked with historically known Nguni groups.

6.2.6 Later History: Historical archaeology and living heritage

The oral and written history of the Eastern Cape pertaining to the last centuries is relatively abundant resulting from an assimilation of local folklore and Historical sources such as missionary accounts. The Historical period for this area can be divided into three periods of settlement, as described in oral traditions and local histories. First in the area were the pioneers, arriving between the nineteenth century and early twentieth century, depending on the region. They may have lived in caves at first (sometimes in association with San), or had compounds in places not occupied today. Second, the main population established villages on the high shoulders of the mountains and hills when areas were formally allocated to chiefs. This period lasted until the 1940s or 1950 when the chieftaincies were transformed by the paramount chief. The older villages in many areas were abandoned, were combined and/or moved to more accessible locations at lower elevations. Villages of this final phase are often still occupied today (Cain 2005).

At the time of white settlement of the Cape, Xhosa groups were living far inland, into the area between Bushman's River and the Kei River. Since around 1770, they had been confronted with the Afrikaner Trek Boers who approached from the west. Both the Boers and the Xhosa were stock-farmers. The competition for grazing land led first to quarrels between the two groups, and eventually it came to a number of wars known as the Grensoorl e ("border wars" in Afrikaans). The politics of the colonial government attempted to enforce the separation of white and black settlement areas with the Fish River as the border. But the more the colony developed into a modern state with a strong military organization, the more the whites tended towards a policy of land annexing and the subjugation of the black population. In the middle of the 19th century, all the land formerly inhabited by Xhosa was in the hands of white settlers. With the founding of the South African Union in 1910, the British colony and the independent Boer Republics were united. Other types of Historical sites found in the Eastern Cape include early schools and Missions which are part of the cultural transformations between the mid-19th and mid-20th centuries. These sites are often valuable sources of oral histories and written documents and they present a later regional social development in the area where European expansion brought about dramatic changes in social and cultural land tenure on the Eastern Cape frontier.

7 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING

7.1 Heritage resources management and conservation

Archaeological sites, as previously defined in the National Heritage Resources Act (Act 25 of 1999) are places in the landscape where people have lived in the past – generally more than 60 years ago – and have left traces of their presence behind. In South Africa, archaeological sites include hominid fossil sites, places where people of the Earlier, Middle and Later Stone Age lived in open sites, river gravels, rock shelters and caves, Iron Age sites, graves, and a variety of historical sites and structures in rural areas, towns and cities. Palaeontological sites are those with fossil remains of plants and animals where people were not involved in the accumulation of the deposits. The basic principle of cultural heritage conservation is that archaeological and other heritage sites are valuable, scarce and *non-renewable*. Many such sites are unfortunately lost on a daily basis through development for housing, roads and infrastructure and once archaeological sites are damaged, they cannot be re-created as site integrity and authenticity is permanently lost. Archaeological sites have the potential to contribute to our understanding of the history of the region and of our country and continent. By preserving links with our past, we may not be able to revive lost cultural traditions, but it enables us to appreciate the role they have played in the history of our country.

7.2 Categories of significance

Rating the significance of archaeological sites, and consequently grading the potential impact on the resources is linked to the significance of the site itself. The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences. The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3 are used when determining the cultural significance or other special value of archaeological or historical sites. In addition, ICOMOS (the Australian Committee of the International Council on Monuments and Sites) highlights four cultural attributes, which are valuable to any given culture:

- *Aesthetic value:*

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria include consideration of the form, scale, colour, texture and material of the fabric, the general atmosphere associated with the place and its uses and also the aesthetic values commonly assessed in the analysis of landscapes and townscape.

- *Historic value:*

Historic value encompasses the history of aesthetics, science and society and therefore to a large extent underlies all of the attributes discussed here. Usually a place has historical value because of some kind of influence by an event, person, phase or activity.

- *Scientific value:*

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality and on the degree to which the place may contribute further substantial information.

- *Social value:*

Social value includes the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a certain group.

It is important for heritage specialist input in the EIA process to take into account the heritage management structure set up by the NHR Act. It makes provision for a 3-tier system of management including the South Africa Heritage Resources Agency (SAHRA) at a national level, Provincial Heritage Resources Authorities (PHRAs) at a provincial and the local authority. The Act makes provision for two types or forms of protection of heritage resources; i.e. formally protected and generally protected sites:

Formally protected sites:

- Grade 1 or national heritage sites, which are managed by SAHRA
- Grade 2 or provincial heritage sites, which are managed by the local PHRA.
- Grade 3 or local heritage sites.

Generally protected sites:

- Human burials older than 60 years.
- Archaeological and palaeontological sites.
- Shipwrecks and associated remains older than 70 years.
- Structures older than 60 years.

With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise and if the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low. The significance of archaeological sites is generally ranked into the following categories.

Table 7: Heritage Site Significance Ratings

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, augering), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinterment [including 2a, 2b & 3]

Furthermore, the significance of archaeological sites was based on six main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter),
- Social value,
- Uniqueness, and
- Potential to answer current and future research questions.

A fundamental aspect in assessing the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information, which would otherwise be lost.

7.3 Potential Impacts and Significance Ratings¹

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. The section ultimately provides a guideline (Section 7.3.1, Section 7.3.2 & Section 7.3.3) for the rating of impacts and recommendation of management actions for sites of heritage potential in the Upper Mhlahlane Water Supply Augmentation Project area, as supplied in section 7.3.4.

7.3.1 General assessment of impacts on resources

Generally, the value and significance of archaeological and other heritage sites might be impacted on by any activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, any archaeological material or object (as indicated in the National Heritage Resources Act (No 25 of 1999)). Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts. The EIA process therefore specifies impact assessment criteria which can be utilised from the perspective of a heritage specialist study which elucidates the overall extent of impacts.

Table 8: Impact Assessment Criteria

Significance of the heritage resource

This is a statement of the nature and degree of significance of the heritage resource being affected by the activity. From a heritage management perspective it is useful to distinguish between whether the significance is embedded in the physical fabric or in associations with events or persons or in the experience of a place; i.e. its visual and non-visual qualities. This statement is a primary informant to the nature and degree of significance of an impact and thus needs to be thoroughly considered. Consideration needs to be given to the significance of a heritage resource at different scales (i.e. sitespecific, local, regional, national or international) and the relationship between the heritage resource, its setting and its associations.

Nature of the impact

This is an assessment of the nature of the impact of the activity on a heritage resource, with some indication of its positive and/or negative effect/s. It is strongly informed by the statement of resource significance. In other words, the nature of the impact may be historical, aesthetic, social, scientific, linguistic or architectural, intrinsic, associational or contextual (visual or non-visual). In many cases, the nature of the impact will include more than one value.

Extent

Here it should be indicated whether the impact will be experienced:

- On a site scale, i.e. extend only as far as the activity;
- Within the immediate context of a heritage resource;
- On a local scale, e.g. town or suburb
- On a metropolitan or regional scale; or
- On a national/international scale.

Duration

Here it should be indicated whether the lifespan of the impact will be:

- Short term, (needs to be defined in context)
- Medium term, (needs to be defined in context)
- Long term where the impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention; or
- Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the

¹ Based on: Winter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

impact can be considered transient.

Of relevance to the duration of an impact are the following considerations:

- Reversibility of the impact; and
- Renewability of the heritage resource.

Intensity

Here it should be established whether the impact should be indicated as:

- Low, where the impact affects the resource in such a way that its heritage value is not affected;
- Medium, where the affected resource is altered but its heritage value continues to exist albeit in a modified way; and
- High, where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed.

Probability

This should describe the likelihood of the impact actually occurring indicated as:

- Improbable, where the possibility of the impact to materialize is very low either because of design or historic experience;
- Probable, where there is a distinct possibility that the impact will occur;
- Highly probable, where it is most likely that the impact will occur; or
- Definite, where the impact will definitely occur regardless of any mitigation measures

Confidence

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.
- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

Impact Significance

The significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature and degree of heritage significance and the nature, duration, intensity, extent, probability and confidence of impacts and can be described as:

- Low; where it would have a negligible effect on heritage and on the decision
- Medium, where it would have a moderate effect on heritage and should influence the decision.
- High, where it would have, or there would be a high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision;
- Very high, where it would have, or there would be high risk of, an irreversible and possibly irreplaceable negative impact on heritage. Impacts of very high significance should be a central factor in decision-making.

7.3.2 Direct impact rating

Direct or primary effects on heritage resources occur at the same time and in the same space as the activity, e.g. loss of historical fabric through demolition work. **Indirect effects or secondary effects** on heritage resources occur later in time or at a different place from the causal activity, or as a result of a complex pathway, e.g. restriction of access to a heritage resource resulting in the gradual erosion of its significance, which is dependent on ritual patterns of access. The following table provides an outline as to the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected.

Table 9: Direct Impact Assessment Criteria

HERITAGE CONTEXT	TYPE OF DEVELOPMENT			
	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
CONTEXT 1 High heritage Value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
CONTEXT 2 Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected

CONTEXT 3 Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
CONTEXT 4 Low to no heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage value expected	Moderate heritage impact expected
NOTE: A DEFAULT "LITTLE OR NO HERITAGE IMPACT EXPECTED" VALUE APPLIES WHERE A HERITAGE RESOURCE OCCURS OUTSIDE THE IMPACT ZONE OF THE DEVELOPMENT.				
HERITAGE CONTEXTS		CATEGORIES OF DEVELOPMENT		
<p>Context 1: Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources</p> <p>Context 2: Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.</p> <p>Context 3: Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources</p> <p>Context 4: Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.</p>		<p>Category A: Minimal intensity development</p> <ul style="list-style-type: none"> - No rezoning involved; within existing use rights. - No subdivision involved. - Upgrading of existing infrastructure within existing envelopes - Minor internal changes to existing structures - New building footprints limited to less than 1000m2. <p>Category B: Low-key intensity development</p> <ul style="list-style-type: none"> - Spot rezoning with no change to overall zoning of a site. - Linear development less than 100m - Building footprints between 1000m2-2000m2 - Minor changes to external envelop of existing structures (less than 25%) - Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%). <p>Category C: Moderate intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site between 5000m2-10 000m2. - Linear development between 100m and 300m. - Building footprints between 2000m2 and 5000m2 - Substantial changes to external envelop of existing structures (more than 50%) - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%) <p>Category D: High intensity development</p> <ul style="list-style-type: none"> - Rezoning of a site in excess of 10 000m2 - Linear development in excess of 300m. - Any development changing the character of a site exceeding 5000m2 or involving the subdivision of a site into three or more erven. - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%) 		

7.3.3 Management actions

Recommendations on relevant heritage resources management actions are vital to the conservation of heritage resources. Recommended management actions may include the following:

Table 10: Management and Mitigation Actions

<p>No further action / Monitoring</p> <p>Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage remains are destroyed.</p> <p>Avoidance</p> <p>This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible.</p> <p>Mitigation</p> <p>This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.</p> <p>Compensation</p> <p>Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource</p>

for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.

Rehabilitation

Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:

- The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.
- Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.
- Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource.

Enhancement

Enhancement is appropriate where the overall heritage significance and its public appreciation value are improved. It does not imply creation of a condition that might never have occurred during the evolution of a place, e.g. the tendency to sanitize the past. This management action might result from the removal of previous layers where these layers are culturally of low significance and detract from the significance of the resource. It would be appropriate in a range of heritage contexts and applicable to a range of resources. In the case of formally protected or significant resources, appropriate enhancement action should be encouraged. Care should, however, be taken to ensure that the process does not have a negative impact on the character and context of the resource. It would thus have to be carefully monitored.

7.4 Site significance and impact rating

7.4.1 Site Significance and Details

Refer to Section 7.3.1, Section 7.3.2 & Section 7.3.3 for background on the rating of impacts and recommendation of management actions for sites of heritage potential. Impact thresholds and management measures for the sites are further discussed in section 7.3.5.

- **Site HP01**

1. SITE DESCRIPTION : Historical Period Structures							
1.1 General Site Description							
The remains of a small historical settlement, including round and square stone stock kraal structures and the indented foundations structures of cattle byres.							
1.2 Site features / artefacts / Other							
Site Location							
Province / District	Eastern Cape Province			Map Number	3128CB		
Farm / Settlement / Zone	Tyeni, Diki-Diki & Mayibe Villages			Co-ordinates	S31.52784	E28.54028	
Site Type							
Surface sites	X			Caves and rock shelters			
Larger open-air sites				Sealed sites (deposits)			
River deposits				Other			
Site Function							
Living / habitation	X			Kill			
Ceremonial				Burial			
Trading / Barter				Art			
Quarry / Mining / Smelting				Other			
Site Placement							
Valley floor		Hill top		Vlei/swamp		River Mouth	
Dam		River Bank		Slope		Plains	X
Other / Comments							
Vegetation							
Riverine		Bushveld		Savannah		Mountain forest	

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forest							
Thornveld	X	Grassland	X	Cultivated	X	Other	
Age Classification							
Stone Age		Early Iron Age		Middle Iron Age		Later Iron Age	
Historical	X	Other	X - recent				
Material Culture							
Midden	X	House Remains	X	Stone Walling	X	Stone Structures	X
Granary		Grinding Stone (L)		Grinding Stone (U)		Granary Stand	
Metal	X	Ceramics (Potter)		Ceramics (Porcelain)	X	Stone (non-lithic)	X
Metal slag		Tuyere		Fauna	X	Bead (Glass)	
Bead (OES / Shell)		Glass	X	Lithics		Smelting Residues	
Other: X - Plastic				Other: X - concrete			
1.3 Site Condition							
The site integrity has been severely compromised and structures have almost completely collapsed.							
2. SITE EVALUATION							
2.1 Heritage Value (NHRA, section 2 [3])				High	Medium	Low	
It has importance to the community or pattern of South Africa's history or pre-colonial history.					X		
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.					X		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.					X		
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.					X		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.					X		
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.					X		
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).					X		
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.					X		
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.						X	
It has significance relating to the history of slavery in South Africa.						X	
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.					X		
2.2 Field Register Rating							
National/Grade 1 [should be registered, retained]							
Provincial/Grade 2 [should be registered, retained]							
Local/Grade 3A [should be registered, mitigation not advised]							
Local/Grade 3B [High significance; mitigation, partly retained]							
Generally Protected A [High/Medium significance, mitigation]							
Generally protected B [Medium significance, to be recorded]							
Generally Protected C [Low significance, no further action]							
2.3 Sphere of Significance				High	Medium	Low	
International							
National							
Provincial							
Local					X		
Specific community							

3. IMPACT RATING AND MITIGATION			
3.1 Impact assessment			
APPROXIMATE DISTANCE FROM DEVELOPMENT: 0 - 100 METERS			
NATURE OF IMPACT: HISTORICAL, AESTHETIC, SOCIAL, SCIENTIFIC, ARCHITECTURAL & VISUAL.			
EXTENT OF IMPACT: Local			
SPECIALIST LEVEL OF CONFIDENCE IN DEGREE OF IMPACT AND SEVERITY: High			
3.2 Impact Significance and Severity			
General assessment of impacts on resource (Refer to Section 7.3.1)		Without Management*	With Management*
	Duration	Permanent: High	Permanent: Low
	Intensity	Low	Low
	Probability	Highly Probable	Improbable
	Impact Significance	High	Negligible
3.3 Direct Impact Rating			
Direct impact on resource	None (the potential development does not adversely or positively affect the heritage resource)		
	Peripheral / Indirect (the heritage resource or its setting is located in proximity to the footprint of the potential development)		
	Destruction / Direct (the heritage resource or site is physically located within the footprint of the potential development)		X
Direct impact rating (Refer to Section 7.3.2) Note that a default "no impact expected" value applies where a heritage resource occurs outside the impact matrix or applicable conservation buffers of the development.		High Heritage Impact Expected.	
3.4 Recommended Management* (refer to section 7.3.3)			
Avoidance / Mitigation / Monitoring			
Comments on recommended management			
<p>Avoidance: Changes to development layout and routes in order to avoid impact on the resources. Monitoring: It is necessary that the sites be monitored to ensure that heritage resources are not impacted on. If further impact occurs, or is envisaged at any stage of development and operation the following will be required:</p> <ul style="list-style-type: none"> - Documentation of sites. - Further desktop study and community consultation to more accurately ascertain context of sites. - Relevant Permitting from Heritage Resources Authority where applicable. . 			
4. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS			
<ul style="list-style-type: none"> - National Heritage Resources Act (Act no. 25 of 1999) - Local and regional provisions, laws and by-laws 			

- **Site HP02**

1. SITE DESCRIPTION : Historical Period Structures				
1.2 General Site Description				
The remains of a large historical settlement, including round and square stone stock kraal structures and the indented foundations structures of cattle byres.				
1.2 Site features / artefacts / Other				
Site Location				
Province / District	Eastern Cape Province	Map Number	3128CB	
Farm / Settlement / Zone	Mtshobo, Ngqunge & Dukathole Villages	Co-ordinates	S31.600725°	E28.501575°
Site Type				
Surface sites	X	Caves and rock shelters		
Larger open-air sites		Sealed sites (deposits)		
River deposits		Other		
Site Function				
Living / habitation	X	Kill		

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Ceremonial		Burial	
Trading / Barter		Art	
Quarry / Mining / Smelting		Other	
Site Placement			
Valley floor		Hill top	
		Vlei/swamp	
		River Mouth	
Dam		River Bank	
		Slope	
		Plains	X
Other / Comments			
Vegetation			
Riverine forest		Bushveld	
		Savannah	
		Mountain forest	
Thornveld	X	Grassland	X
		Cultivated	X
		Other	
Age Classification			
Stone Age		Early Iron Age	
		Middle Iron Age	
		Later Iron Age	
Historical	X	Other	X - recent
Material Culture			
Midden	X	House Remains	X
		Stone Walling	X
		Stone Structures	X
Granary		Grinding Stone (L)	
		Grinding Stone (U)	
		Granary Stand	
Metal	X	Ceramics (Potter)	
		Ceramics (Porcelain)	X
		Stone (non-lithic)	X
Metal slag		Tuyere	
		Fauna	X
		Bead (Glass)	
Bead (OES / Shell)		Glass	X
		Lithics	
		Smelting Residues	
Other: X - Plastic		Other: X - concrete	
1.3 Site Condition			
The site integrity has been severely compromised and structures have almost completely collapsed.			
2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])			
	High	Medium	Low
It has importance to the community or pattern of South Africa's history or pre-colonial history.		X	
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		X	
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		X	
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		X	
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		X	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		X	
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		X	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		X	
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			X
It has significance relating to the history of slavery in South Africa.			X
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.		X	
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			

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Generally Protected A [High/Medium significance, mitigation]	X		
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local		X	
Specific community			
3. IMPACT RATING AND MITIGATION			
3.1 Impact assessment			
APPROXIMATE DISTANCE FROM DEVELOPMENT: 0 - 100 METERS			
NATURE OF IMPACT: HISTORICAL, AESTHETIC, SOCIAL, SCIENTIFIC, ARCHITECTURAL & VISUAL.			
EXTENT OF IMPACT: Local			
SPECIALIST LEVEL OF CONFIDENCE IN DEGREE OF IMPACT AND SEVERITY: High			
3.2 Impact Significance and Severity			
General assessment of impacts on resource (Refer to Section 7.3.1)		Without Management*	With Management*
	Duration	Permanent: High	Permanent: Low
	Intensity	Low	Low
	Probability	Highly Probable	Improbable
	Impact Significance	High	Negligible
3.3 Direct Impact Rating			
Direct impact on resource	None (the potential development does not adversely or positively affect the heritage resource)		
	Peripheral / Indirect (the heritage resource or its setting is located in proximity to the footprint of the potential development)		
	Destruction / Direct (the heritage resource or site is physically located within the footprint of the potential development)		X
Direct impact rating (Refer to Section 7.3.2) Note that a default "no impact expected" value applies where a heritage resource occurs outside the impact matrix or applicable conservation buffers of the development.		High Heritage Impact Expected.	
3.4 Recommended Management* (refer to section 7.3.3)			
Avoidance / Mitigation / Monitoring			
Comments on recommended management			
<p>Avoidance: Changes to development layout and routes in order to avoid impact on the resources.</p> <p>Monitoring: It is necessary that the sites be monitored to ensure that heritage resources are not impacted on. If further impact occurs, or is envisaged at any stage of development and operation the following will be required:</p> <ul style="list-style-type: none"> - Documentation of sites. - Further desktop study and community consultation to more accurately ascertain context of sites. - Relevant Permitting from Heritage Resources Authority where applicable. . 			
4. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS			
<ul style="list-style-type: none"> - National Heritage Resources Act (Act no. 25 of 1999) - Local and regional provisions, laws and by-laws 			

- Sites BP01 – BP11

1. SITE DESCRIPTION: Informal Burial Place			
1.1 General Site Description			
Informal burial places in the form of soil mounds, stone mounds, dressed marble, brick and tile.			
1.2 Site features / artefacts / Other			
Site Location			
Province / District	Eastern Cape Province	Map Number	3128CB

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Farm / Settlement / Zone	Mpafane & Lubomvini Villages	Co-ordinates	S31.51517 S31.51553 S31.51865 S31.52431 S31.52382 S31.52381 S31.52330 S31.52295 S31.49781 S31.49761 S31.49511	E28.46002 E28.46077 E28.46660 E28.46501 E28.46623 E28.46649 E28.46701 E28.46653 E28.49541 E28.49535 E28.49863
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Site Type			
Surface sites	X	Caves and rock shelters	
Larger open-air sites		Sealed sites (deposits)	
River deposits		Other	

Site Function			
Living / habitation		Kill	
Ceremonial		Burial	X
Trading / Barter		Art	
Quarry / Mining / Smelting		Other	

Site Placement							
Valley floor		Hill top		Vlei/swamp		River Mouth	
Dam		River Bank		Slope		Plains	X
Other / Comments							

Vegetation							
Riverine forest		Bushveld		Savannah		Mountain forest	
Thornveld	X	Grassland	X	Cultivated	X	Other	

Age Classification							
Stone Age		Early Iron Age		Middle Iron Age		Later Iron Age	
Historical	X	Other	X – Recent.				

Material Culture							
Midden		House Remains		Stone Walling		Stone Structures	X
Granary		Grinding Stone (L)		Grinding Stone (U)		Granary Stand	
Metal		Ceramics (Pottery)		Ceramics (Porcelain)		Stone (non-lithic)	
Metal slag		Tuyere		Fauna		Bead (Glass)	
Bead (OES / Shell)		Glass		Lithics		Smelting Residues	
Other: X - Marble, tile and concrete grave dressings				Other:			

1.3 Site Condition
 The site integrity ranges between poor in burials that are not maintained, to good in maintained and more recent graves.

2. SITE EVALUATION

2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa's history or pre-colonial history.		X	
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.	X		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		X	
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	X		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			X

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It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			X
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	X		
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			X
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			X
It has significance relating to the history of slavery in South Africa.			X
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.		X	
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			X
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance		High	Medium
International			
National			
Provincial			
Local	X		
Specific community			
3. IMPACT RATING AND MITIGATION			
3.1 Impact assessment			
APPROXIMATE DISTANCE FROM DEVELOPMENT: 0-50 METERS			
NATURE OF IMPACT: Historical, Aesthetic, Social, Scientific, Intrinsic, Associational & Contextual			
EXTENT OF IMPACT: Local			
SPECIALIST LEVEL OF CONFIDENCE IN DEGREE OF IMPACT AND SEVERITY: High			
3.2 Impact Significance and Severity			
General assessment of impacts on resource (Refer to Section 7.3.1)		Without Management*	With Management*
	Duration	Permanent: High	Permanent: Low
	Intensity	High	Low
	Probability	Highly Probable	Low
	Impact Significance	High	Low
3.3 Direct Impact Rating			
Direct impact on resource	None (the potential development does not adversely or positively affect the heritage resource)		
	Peripheral / Indirect (the heritage resource or its setting is located in proximity to the footprint of the potential development)		
	Destruction / Direct (the heritage resource or site is physically located within the footprint of the potential development)		X
Direct impact rating (Refer to Section 7.3.2) Note that a default "no impact expected" value applies where a heritage resource occurs outside the impact matrix or applicable conservation buffers of the development.		Very high heritage impact expected	
3.4 Recommended Management* (refer to section 7.3.3)			
Avoidance / Mitigation / Monitoring			
Comments on recommended management			
Avoidance: Changes to development layout and routes in order to avoid impact on the burials or conservation buffers. Monitoring: Ensure that sites are not impacted on.			

However, if this measure is not plausible, the following mitigation actions would be required:

- Documentation of site.
- Exhumation and reburial
- Full social consultation.
- Possible conservation management and protection measures.
- Relevant Permitting from Heritage Resources Authority.

4. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS

- Human Tissue Act (Act 65 of 1983 as amended).
- Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)
- Ordinance on Excavations (Ordinance no. 12 of 1980)
- Local and regional provisions, laws and by-laws
- National Heritage Resources Act (Act no. 25 of 1999)
- Permit from SAHRA for removal

- Sites BP12 – BP15 & BP82

1. SITE DESCRIPTION: Informal Burial Place							
1.1 General Site Description							
Informal burial places in the form of soil mounds, stone mounds, dressed marble, brick and tile.							
1.2 Site features / artefacts / Other							
Site Location							
Province / District	Eastern Cape Province			Map Number	3128CB		
Farm / Settlement / Zone	Tyeni, Diki-Diki & Mayibe Villages			Co-ordinates	S31.50995 S31.53215 S31.53801 S31.53625 S31.551871°	E28.56343 E28.48925 E28.48694 E28.48367 E28.486220°	
Site Type							
Surface sites	X			Caves and rock shelters			
Larger open-air sites				Sealed sites (deposits)			
River deposits				Other			
Site Function							
Living / habitation				Kill			
Ceremonial				Burial	X		
Trading / Barter				Art			
Quarry / Mining / Smelting				Other			
Site Placement							
Valley floor		Hill top		Vlei/swamp		River Mouth	
Dam		River Bank		Slope		Plains	X
Other / Comments							
Vegetation							
Riverine forest		Bushveld		Savannah		Mountain forest	
Thornveld	X	Grassland	X	Cultivated	X	Other	
Age Classification							
Stone Age		Early Iron Age		Middle Iron Age		Later Iron Age	
Historical	X	Other	X – Recent.				
Material Culture							
Midden		House Remains		Stone Walling		Stone Structures	X
Granary		Grinding Stone (L)		Grinding Stone (U)		Granary Stand	
Metal		Ceramics (Pottery)		Ceramics (Porcelain)		Stone (non-lithic)	

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Metal slag		Tuyere		Fauna		Bead (Glass)	
Bead (OES / Shell)		Glass		Lithics		Smelting Residues	
Other: X - Marble, tile and concrete grave dressings				Other:			

1.3 Site Condition

The site integrity ranges between poor in burials that are not maintained, to good in maintained and more recent graves.

2. SITE EVALUATION

2.1 Heritage Value (NHRA, section 2 [3])

	High	Medium	Low
It has importance to the community or pattern of South Africa's history or pre-colonial history.		X	
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.	X		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		X	
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	X		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			X
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			X
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	X		
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			X
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			X
It has significance relating to the history of slavery in South Africa.			X
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.		X	

2.2 Field Register Rating

National/Grade 1 [should be registered, retained]	
Provincial/Grade 2 [should be registered, retained]	
Local/Grade 3A [should be registered, mitigation not advised]	
Local/Grade 3B [High significance; mitigation, partly retained]	X
Generally Protected A [High/Medium significance, mitigation]	
Generally protected B [Medium significance, to be recorded]	
Generally Protected C [Low significance, no further action]	

2.3 Sphere of Significance

	High	Medium	Low
International			
National			
Provincial			
Local	X		
Specific community			

3. IMPACT RATING AND MITIGATION

3.1 Impact assessment

APPROXIMATE DISTANCE FROM DEVELOPMENT: 0-50 METERS

NATURE OF IMPACT: Historical, Aesthetic, Social, Scientific, Intrinsic, Associational & Contextual

EXTENT OF IMPACT: Local

SPECIALIST LEVEL OF CONFIDENCE IN DEGREE OF IMPACT AND SEVERITY: High

3.2 Impact Significance and Severity

General assessment of impacts on resource (Refer to Section 7.3.1)		Without Management*	With Management*
	Duration	Permanent: High	Permanent: Low

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Intensity	High	Low
Probability	Highly Probable	Low
Impact Significance	High	Low

3.3 Direct Impact Rating

Direct impact on resource	None (the potential development does not adversely or positively affect the heritage resource)	
	Peripheral / Indirect (the heritage resource or its setting is located in proximity to the footprint of the potential development)	
	Destruction / Direct (the heritage resource or site is physically located within the footprint of the potential development)	X

Direct impact rating (Refer to Section 7.3.2)

Note that a default "no impact expected" value applies where a heritage resource occurs outside the impact matrix or applicable conservation buffers of the development.

Very high heritage impact expected

3.4 Recommended Management* (refer to section 7.3.3)

Avoidance / Mitigation / Monitoring

Comments on recommended management

Avoidance: Changes to development layout and routes in order to avoid impact on the burials or conservation buffers.
Monitoring: Ensure that sites are not impacted on.

However, if this measure is not plausible, the following mitigation actions would be required:

- Documentation of site.
- Exhumation and reburial
- Full social consultation.
- Possible conservation management and protection measures.
- Relevant Permitting from Heritage Resources Authority.

4. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS

- Human Tissue Act (Act 65 of 1983 as amended).
- Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)
- Ordinance on Excavations (Ordinance no. 12 of 1980)
- Local and regional provisions, laws and by-laws
- National Heritage Resources Act (Act no. 25 of 1999)
- Permit from SAHRA for removal

- Sites BP16 – BP59

1. SITE DESCRIPTION: Informal Burial Place

1.1 General Site Description

Informal burial places in the form of soil mounds, stone mounds, dressed marble, brick and tile.

1.2 Site features / artefacts / Other

Site Location

Province / District	Eastern Cape Province	Map Number	3128CB	
Farm / Settlement / Zone	Mtshobo, Ngqunge & Dukathole Villages	Co-ordinates	S31.54270	E28.53040
			S31.54553	E28.52969
			S31.54650	E28.52715
			S31.54626	E28.52693
			S31.54396	E28.52177
			S31.54799	E28.52700
			S31.54817	E28.52720
			S31.55141	E28.53200
			S31.55244	E28.53375
			S31.55302	E28.53172
			S31.55944	E28.51513
			S31.56108	E28.51522
			S31.56330	E28.51292
			S31.56258	E28.51410
			S31.56360	E28.51747
			S31.56919	E28.51746
			S31.57749	E28.52442
S31.57742	E28.52370			

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				S31.57789	E28.52101
				S31.57883	E28.52030
				S31.57934	E28.51966
				S31.58051	E28.52213
				S31.57939	E28.52277
				S31.58022	E28.52424
				S31.58429	E28.51787
				S31.58760	E28.51905
				S31.58653	E28.52013
				S31.58640	E28.52017
				S31.58869	E28.52247
				S31.58916	E28.52289
				S31.59195	E28.52164
				S31.59370	E28.51978
				S31.59519	E28.52233
				S31.59764	E28.51936
				S31.59893	E28.52032
				S31.59932	E28.52298
				S31.59930	E28.52310
				S31.60046	E28.51700
				S31.60070	E28.51717
				S31.60319	E28.51091
				S31.59424	E28.50833
				S31.59123	E28.50964
				S31.57022	E28.51818
				S31.600745	E28.501649
Site Type					
Surface sites	X			Caves and rock shelters	
Larger open-air sites				Sealed sites (deposits)	
River deposits				Other	
Site Function					
Living / habitation				Kill	
Ceremonial				Burial	X
Trading / Barter				Art	
Quarry / Mining / Smelting				Other	
Site Placement					
Valley floor		Hill top		Vlei/swamp	
Dam		River Bank		Slope	
Other / Comments				Plains	X
Vegetation					
Riverine forest		Bushveld		Savannah	
Thornveld	X	Grassland	X	Cultivated	X
				Other	
Age Classification					
Stone Age		Early Iron Age		Middle Iron Age	
Historical	X	Other		X – Recent.	
Material Culture					
Midden		House Remains		Stone Walling	
Granary		Grinding Stone (L)		Grinding Stone (U)	
Metal		Ceramics (Pottery)		Ceramics (Porcelain)	
Metal slag		Tuyere		Fauna	
Bead (OES / Shell)		Glass		Lithics	
Other: X - Marble, tile and concrete grave dressings				Other:	

1.3 Site Condition			
The site integrity ranges between poor in burials that are not maintained, to good in maintained and more recent graves.			
2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa's history or pre-colonial history.		X	
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.	X		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		X	
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	X		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			X
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			X
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	X		
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			X
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			X
It has significance relating to the history of slavery in South Africa.			X
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.		X	
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			X
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local	X		
Specific community			
3. IMPACT RATING AND MITIGATION			
3.1 Impact assessment			
APPROXIMATE DISTANCE FROM DEVELOPMENT: 0-50 METERS			
NATURE OF IMPACT: Historical, Aesthetic, Social, Scientific, Intrinsic, Associational & Contextual			
EXTENT OF IMPACT: Local			
SPECIALIST LEVEL OF CONFIDENCE IN DEGREE OF IMPACT AND SEVERITY: High			
3.2 Impact Significance and Severity			
General assessment of impacts on resource (Refer to Section 7.3.1)		Without Management*	With Management*
	Duration	Permanent: High	Permanent: Low
	Intensity	High	Low
	Probability	Highly Probable	Low
	Impact Significance	High	Low

3.3 Direct Impact Rating	
Direct impact on resource	None (the potential development does not adversely or positively affect the heritage resource)
	Peripheral / Indirect (the heritage resource or its setting is located in proximity to the footprint of the potential development)
	Destruction / Direct (the heritage resource or site is physically located within the footprint of the potential development)
X	
Direct impact rating (Refer to Section 7.3.2) Note that a default "no impact expected" value applies where a heritage resource occurs outside the impact matrix or applicable conservation buffers of the development.	
Very high heritage impact expected	
3.4 Recommended Management* (refer to section 7.3.3)	
Avoidance / Mitigation / Monitoring	
Comments on recommended management	
Avoidance: Changes to development layout and routes in order to avoid impact on the burials or conservation buffers. Monitoring: Ensure that sites are not impacted on.	
However, if this measure is not plausible, the following mitigation actions would be required:	
<ul style="list-style-type: none"> - Documentation of site. - Exhumation and reburial - Full social consultation. - Possible conservation management and protection measures. - Relevant Permitting from Heritage Resources Authority. 	
4. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS	
<ul style="list-style-type: none"> - Human Tissue Act (Act 65 of 1983 as amended). - Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) - Ordinance on Excavations (Ordinance no. 12 of 1980) - Local and regional provisions, laws and by-laws - National Heritage Resources Act (Act no. 25 of 1999) - Permit from SAHRA for removal 	

- **Sites BP60 – BP81**

1. SITE DESCRIPTION: Informal Burial Place				
1.1 General Site Description				
Informal burial places in the form of soil mounds, stone mounds, dressed marble, brick and tile.				
1.2 Site features / artefacts / Other				
Site Location				
Province / District	Eastern Cape Province	Map Number	3128CB	
Farm / Settlement / Zone	Mbozeni, Ndungwane & Mampingeni Villages	Co-ordinates	S31.59816	E28.49327
			S31.59839	E28.49054
			S31.59817	E28.48947
			S31.60223	E28.47914
			S31.59769	E28.48000
			S31.60034	E28.47546
			S31.59430	E28.47296
			S31.58245	E28.46222
			S31.58331	E28.45758
			S31.58256	E28.45740
			S31.58056	E28.45526
			S31.58045	E28.45480
			S31.57925	E28.44690
			S31.57917	E28.44661
			S31.57543	E28.44737
			S31.57514	E28.45167
			S31.57356	E28.46696
			S31.56867	E28.47074
			S31.56894	E28.47071
			S31.59833	E28.49479
			S31.57283	E28.47486
			S31.59796	E28.49466

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Site Type							
Surface sites	X			Caves and rock shelters			
Larger open-air sites				Sealed sites (deposits)			
River deposits				Other			
Site Function							
Living / habitation				Kill			
Ceremonial				Burial		X	
Trading / Barter				Art			
Quarry / Mining / Smelting				Other			
Site Placement							
Valley floor		Hill top		Vlei/swamp		River Mouth	
Dam		River Bank		Slope		Plains	X
Other / Comments							
Vegetation							
Riverine forest		Bushveld		Savannah		Mountain forest	
Thornveld	X	Grassland	X	Cultivated	X	Other	
Age Classification							
Stone Age		Early Iron Age		Middle Iron Age		Later Iron Age	
Historical	X	Other	X – Recent.				
Material Culture							
Midden		House Remains		Stone Walling		Stone Structures	X
Granary		Grinding Stone (L)		Grinding Stone (U)		Granary Stand	
Metal		Ceramics (Pottery)		Ceramics (Porcelain)		Stone (non-lithic)	
Metal slag		Tuyere		Fauna		Bead (Glass)	
Bead (OES / Shell)		Glass		Lithics		Smelting Residues	
Other:	X - Marble, tile and concrete grave dressings			Other:			
1.3 Site Condition							
The site integrity ranges between poor in burials that are not maintained, to good in maintained and more recent graves.							
2. SITE EVALUATION							
2.1 Heritage Value (NHRA, section 2 [3])				High	Medium	Low	
It has importance to the community or pattern of South Africa's history or pre-colonial history.					X		
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.				X			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.					X		
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.				X			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.						X	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.						X	
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).				X			
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.						X	
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.						X	
It has significance relating to the history of slavery in South Africa.						X	
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement					X		

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patterns and human occupation.			
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			X
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local	X		
Specific community			
3. IMPACT RATING AND MITIGATION			
3.1 Impact assessment			
APPROXIMATE DISTANCE FROM DEVELOPMENT: 0-50 METERS			
NATURE OF IMPACT: Historical, Aesthetic, Social, Scientific, Intrinsic, Associational & Contextual			
EXTENT OF IMPACT: Local			
SPECIALIST LEVEL OF CONFIDENCE IN DEGREE OF IMPACT AND SEVERITY: High			
3.2 Impact Significance and Severity			
		Without Management*	With Management*
General assessment of impacts on resource (Refer to Section 7.3.1)	Duration	Permanent: High	Permanent: Low
	Intensity	High	Low
	Probability	Highly Probable	Low
	Impact Significance	High	Low
3.3 Direct Impact Rating			
Direct impact on resource	None (the potential development does not adversely or positively affect the heritage resource)		
	Peripheral / Indirect (the heritage resource or its setting is located in proximity to the footprint of the potential development)		
	Destruction / Direct (the heritage resource or site is physically located within the footprint of the potential development)		X
Direct impact rating (Refer to Section 7.3.2) Note that a default "no impact expected" value applies where a heritage resource occurs outside the impact matrix or applicable conservation buffers of the development.		Very high heritage impact expected	
3.4 Recommended Management* (refer to section 7.3.3)			
Avoidance / Mitigation / Monitoring			
Comments on recommended management			
<p>Avoidance: Changes to development layout and routes in order to avoid impact on the burials or conservation buffers.</p> <p>Monitoring: Ensure that sites are not impacted on.</p> <p>However, if this measure is not plausible, the following mitigation actions would be required:</p> <ul style="list-style-type: none"> - Documentation of site. - Exhumation and reburial - Full social consultation. - Possible conservation management and protection measures. - Relevant Permitting from Heritage Resources Authority. 			
4. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS			
<ul style="list-style-type: none"> - Human Tissue Act (Act 65 of 1983 as amended). - Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) - Ordinance on Excavations (Ordinance no. 12 of 1980) 			

- Local and regional provisions, laws and by-laws
- National Heritage Resources Act (Act no. 25 of 1999)
- Permit from SAHRA for removal

7.4.2 Evaluation of Results and Impacts

Previous studies conducted in the larger Eastern Cape area suggest a rich and diverse, yet relatively understudied archaeological landscape and cognisance should be taken of archaeological material that might be present in surface and sub-surface deposits. The following impact assessment discussion summarises the extent of heritage significance and impact on resources, cognisant of this rich larger archae-historical landscape (refer to Section 2.3 for infrastructure description and Table 6 for impact assessment matrix).

The Historical Period / recent remains of huts, cattle byres and settlements in the study area (**Sites HP01 & HP02**) are of medium significance as the sites might yield an understanding of the recent occupational and social history of the area, as well as historical architectural and settlement developments in the larger landscape. The sites is located within, or in the vicinity of the pipeline route alternatives and the impact on the site by the proposed activities is expected to be direct and permanent where in essence, the impact might result the potential damage / loss of the site. **The significance of the impact on the heritage resources is considered MODERATE but the threshold of the impact can be limited to a NEGLIBLE impact by the implementation of mitigation measures (avoidance, conservation, documentation, monitoring) for the sites, if / when required.**

The large number of graves and cemeteries occurring in the study area (**Sites BP01 – BP81**) is of heritage priority and carries high significance ratings. In almost all of the burial locations, sites occur within or in the close vicinity of pipeline route alternatives and the impact on these sites by the proposed activities is expected to be direct and permanent where in essence, the impact might result the potential damage / loss of burials. **The significance of the impact on the heritage resource is considered to be HIGH but the threshold of the impact can be limited to a NEGLIBLE impact by the implementation of mitigation measures (avoidance, conservation, documentation, monitoring) for the sites, if / when required.**

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Table 6: Impact assessment matrix for proposed bulk water and reticulation line routes and associated infrastructure during the Pre-Construction, Construction, Operation and Closure Phases. Unique weight values are indicated below matrix.

Site	Activity	Impact	P	D	S	M/S	Significance Before Mitigation	Mitigation Measures	P	D	S	M / S	Significance		
Pre-Construction, Construction, Operation and Closure								Pre-Construction and Construction Phase							
HP01	Pre-Construction, Construction, Operation and Closure	Loss of Heritage Resource and Attributes	4	5	1	6	48	Moderate	Avoidance & Conservation	1	1	1	2	4	Negligible
HP02	Pre-Construction, Construction, Operation and Closure	Loss of Heritage Resource and Attributes	4	5	1	6	48	Moderate	Avoidance & Conservation	1	1	1	2	4	Negligible
BP01 – BP11	Pre-Construction, Construction, Operation and Closure	Loss of Heritage Resource and Attributes	5	5	1	8	70	High	Avoidance & Conservation	1	1	1	2	4	Negligible
BP12 – BP15 & BP82	Pre-Construction, Construction, Operation and Closure	Loss of Heritage Resource and Attributes	5	5	1	8	70	High	Avoidance & Conservation	1	1	1	2	4	Negligible
BP16 – BP59	Pre-Construction, Construction, Operation and Closure	Loss of Heritage Resource and Attributes	5	5	1	8	70	High	Avoidance & Conservation	1	1	1	2	4	Negligible
BP60 – BP81	Pre-Construction, Construction, Operation and Closure	Loss of Heritage Resource and Attributes	5	5	1	8	70	High	Avoidance & Conservation	1	1	1	2	4	Negligible

Aspect	Description	Weight	Aspect	Description	Weight	Aspect	Description	Weight	Aspect	Description	Weight	Aspect	Description	Weight
Probability	Improbable	1	Duration	Short term	1	Scale	Local	1	Magnitude/Severity	Low	2	Significance	Sum(Duration, Scale, Magnitude) x Probability	
	Probable	2		Medium term	3		Site	2		Medium	6		Negligible	<20
	Highly Probable	4		Long term	4		Regional	3		High	8		Low	<40
	Definite	5		Permanent	5								Moderate	<60
													High	>60

8 RECOMMENDATIONS

8.1 Site-Specific Recommendations

The larger landscape around Mhlahlane is rich in pre-historical and historical remnants. Cognisant of this historically significant landscape and the need for the conservation of its heritage resources, the following recommendations are made for the Upper Mhlahlane Water Supply Augmentation Project archaeological assessment, based on general observations in the study area:

- Since the palaeontological sensitivity of rock units within the study area is generally low the impact significance of the proposed prospecting activities as far as fossil heritage is concerned, is likely to be small. However, it is recommended that the general landscape be closely monitored during construction, in order not to disturb undetected palaeontological remains. Should fossil remains such as fossil fish, reptiles or vitrified wood be exposed during construction, a suitably qualified palaeontologist should be consulted in order to establish the significance, and provide management measures for such resources. These objects should be carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately.
- Two probably Historical Period structures (**Sites HP01 & HP02**) are of medium significance and it is recommended that the sites be carefully documented and the provenance of the sites be established by means of a desktop study and social consultation and participation, if the sites were to be impacted on by the proposed road upgrade. If this were to be the case, a destruction permit from the relevant heritage resources authority (SAHRA) would be mandatory.
- In principle, graves or any possible burials should be excluded from mitigation measures as the legal, moral and ethical aspects of the disturbance of graves are extremely complex. Also, graves older than 60 years, or unmarked burial places are protected under the NHRA (Act 25 of 1999). The intrinsic heritage and social value of the graves in the Upper Mhlahlane Water Supply Augmentation Project area (**Sites BP01 – BP82**) requires special management attention and the sites necessitate a conservation buffer zone of at least 10m around all graves and cemeteries. It is recommended that all proposed bulk water and reticulation line routes in the vicinity of identified graves and burials be rerouted to avoid these sites and the required conservation buffers. In addition, it is strongly recommended that all cemeteries and graves in the vicinity of the proposed activities be properly fenced and access control be implemented. However, should the graves or the required 10m buffer zone be impacted in any way by the planned activities, full grave relocations are recommended for these burials. This measure should be undertaken by a qualified archaeologist, and in accordance with the Human Tissue Act (Act 65 of 1983 as amended), the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the National Heritage Resources Act (Act no. 25 of 1999) and any local and regional provisions, laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials.
- Due cognisance should be taken of the larger palaeontological, archaeological and historical landscape of the area in order to avoid the destruction of previously undetected heritage sites in the area. Here, care should be taken around sandstone outcrops and rock faces, as rock art is known to occur on such features. Water sources such as drainage lines, springs and pans should also be regarded as potentially sensitive in terms of possible Stone Age deposits. The existence of Historical Period and recent resources deriving from the area's contemporary farming history should also be considered.

- A careful watching brief monitoring process is recommended for all stages of construction and infrastructure development. Should any subsurface paleontological / archaeological / historical material be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately

8.2 General Recommendations

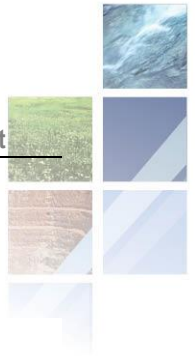
In addition to the above recommendations, careful cognizance should be taken of the following:

- Archaeological traces of Iron Age settlements in this area are sometimes ephemeral unless the characteristic stone-wall towns are identified or surface scatters of thick-walled pottery.
- As noted in this report, rock art is known to exist in sandstone overhangs and rock faces in the larger landscape. Such geological features occur in the landscape but no rock art or markings were identified. Such sandstone outcrops and rock faces should nonetheless be regarded as potentially sensitive in terms of rock markings.
- Water sources such as drainage lines, fountains and pans would often have attracted human activity in the past. As Stone Age material seems to originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits.
- As Palaeontological remains occur where bedrock has been exposed, such geological features should be regarded as sensitive in terms of impacts on fossilized resources.
- The Mhlahlane area has been occupied for many centuries and places of “Living Heritage” might be present in the landscape. Here, “Living Heritage” can broadly refer to a place of cultural heritage and sacred nature; with cultural attributions that are not generally physically manifested. Such places might include initiation sites, places of ritual seclusion, old farmsteads, ritual graves and specific meeting areas. These sites and possible material residues thereof convey an intangible cultural significance beyond the site, shelter or object, where the meaning speaks directly of a sense of place and lived experience. Therefore, Historical period and recent material culture and structures should be regarded as potentially sensitive in terms of the tangible and intangible value of such resources.

9 GENERAL COMMENTS AND CONDITIONS

This AIA report serves to confirm the extent and significance of archaeological material along on the Upper Mhlahlane Water Supply Augmentation Project area. In addition to heritage resources occurring here, the larger Eastern Cape and Wild Coast encompasses a rich and diverse archaeological landscape and cognizance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, during construction, any possible archaeological material culture are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. Such material culture might include:

- Formal Earlier Stone Age stone tools such as handaxes, choppers and cleavers.
- Formal Middle Stone Age stone tools such as points, blades and scrapers.
- Formal Later Stone Age stone tools such a microlithic blades, points and scrapers.
- Lithic residues and debris such as stone cores and flakes.
- Decorated and undecorated potsherds.



- Iron objects.
- Beads made from ostrich eggshell and glass.
- Ash middens and cattle dung deposits and accumulations.
- Animal bones and faunal remains.
- Human remains/graves.
- Stone walling or any sub-surface structures.
- Historical glass, tin or ceramics.
- Fossils.

If such site were to be encountered or impacted by any proposed developments, recommendations contained in this report, as well as endorsement of mitigation measures as set out by SAHRA, the National Resources Act and the CRM section of ASAPA will be required. Please note that this report is an archaeological scoping study only and does not include or exempt other required heritage impact assessments.

It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, represent the area's complete archaeological legacy. Many sites/features may be covered by soil and vegetation and might only be located during sub-surface investigations. If subsurface archaeological deposits, artefacts or skeletal material were to be recovered in the area during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately (**cf. NHRA (Act No. 25 of 1999), Section 36 (6)**).

It must also be clear that Archaeological Specialist Reports will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which should give a permit or a formal letter of permission for the destruction of any cultural sites.

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